Unpublished Addenda

A Vintage Radio MONOGRAPH

by

D. H. MOORE

LINCOLN R-9

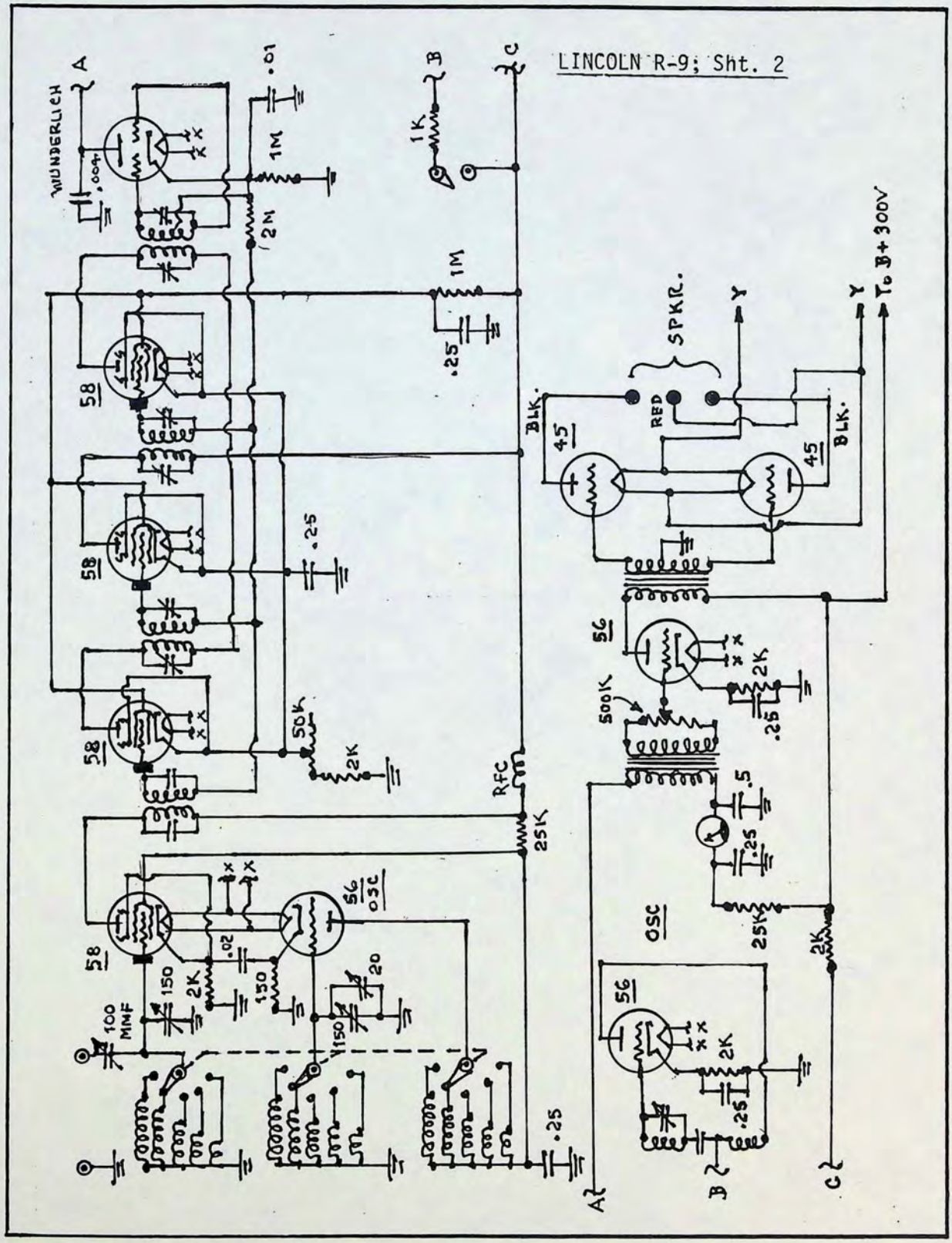
The LINCOLN R-9 was a bit later than the period covered by these Sketch-Books and Monographs, but when I saw it, I immediately felt that it was a "pretty" example of early short-wave receivers, so I decided to include it here.

The R-9 was adapted from the same circuitry as LINCOLN's De-Luxe SW-33. It was a short-wave super-het, with 11 tubes, and a seperate power amplifier. The tube complement was (2) 45, (3) 56, (4) 58, and the then-wonder-tube known as the Wunderlich; plus the 80 in the power unit. The selector-switch (band-switch) was noted for its silver-plated contacts. The Wunderlich tube permitted AVC control from the front panel, as well as BFO controllable from the panel. The meter, called a "Signal Indicator", showed you when you had centered the carrier, as well as indicating un-modulated carriers.

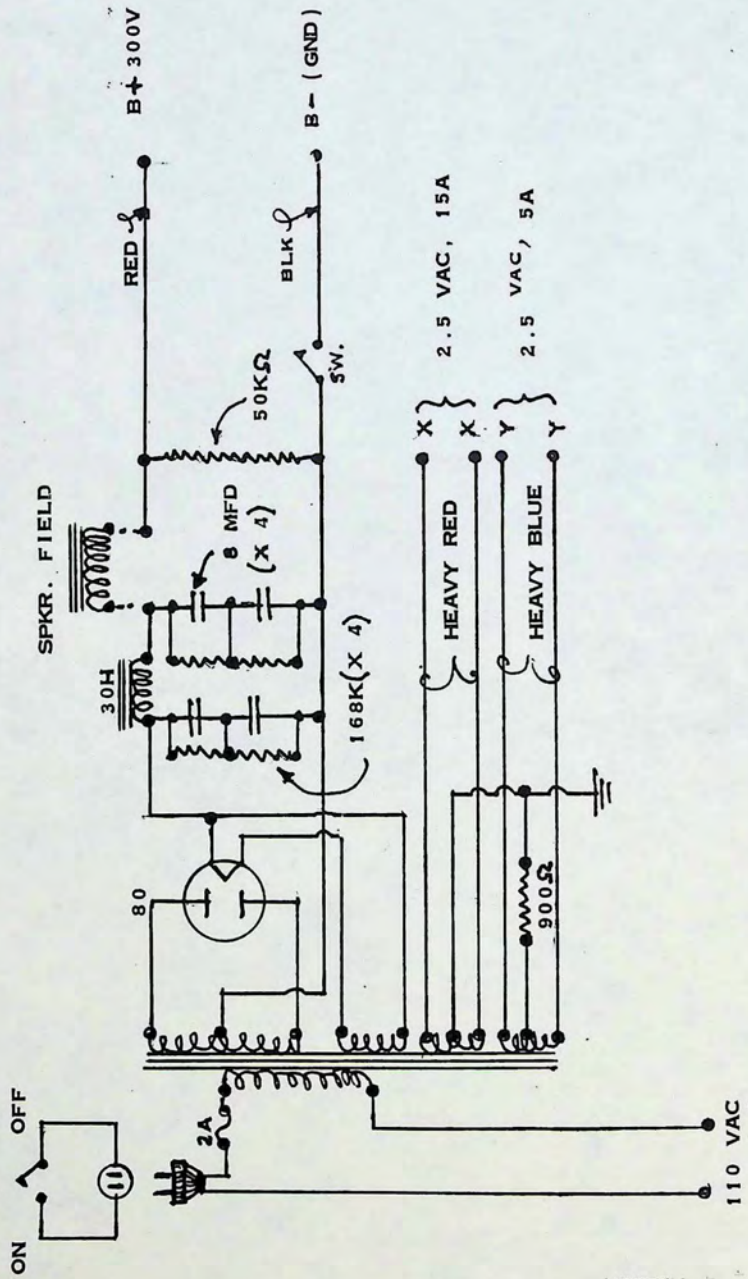
The left-hand dial was for tuning; the right-hand dial was the band-spread. A jack was provided for head-phones, although the normal output went to a dynamic speaker. The band-spread was effective on all frequencies, and control of Sensitivity and Volume was the same as with the SW-33.

The cover was heavy metal, resting on a thick wooden base with a deeply etched moulding running around three sides. All in all, a most satisfactory all-wave receiver, covering 9 to 200 meters, and reflecting the true state-of-the-art in 1933.

* * *


LINCOLN R-9; Sht. 2
WUNDERLICH
A
B
C
.01
1M
2M
1K
.004
58
.25
50K
2K
RFC
25K
56
OSC
.02
150
100 MMF
20
.5
5001K
SPKR.
RED
BLK.
45
Y
To B+ 300V

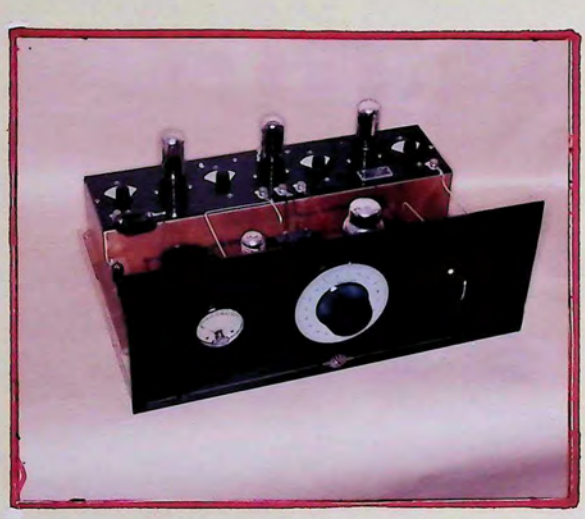
LINCOLN R-9 SHORT-WAVE RECEIVER, 1933: Sht. 3



LINCOLN R-9 POWER SUPPLY

THIS POWER SUPPLY IS ESSENTIALLY THE SAME AS THE LINCOLN SW-33.

A FEW ORIGINAL CONSTRUCTIONS by D.H.MOORE

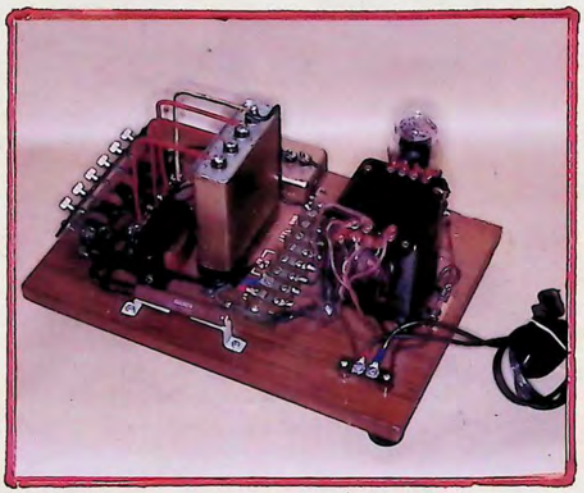


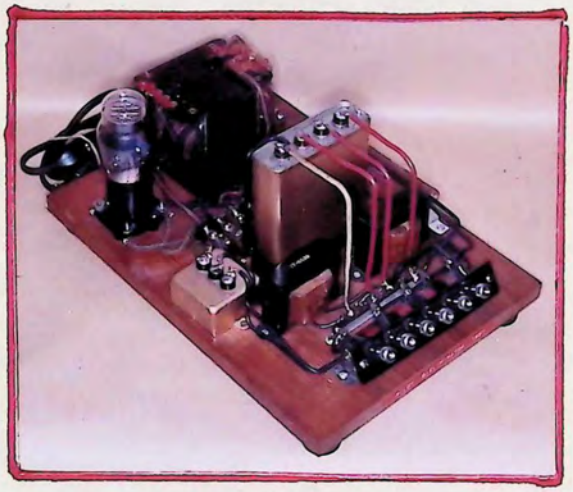
SARGENT'S "INFRA-DYNE" AMPLIFIER
(THIS IS CLYDE FITCH'S VERSION
WHICH WAS BETTER BALANCED.)
1927

C-BIAS & '99 POWER SUPPLY

'A'-ELIMINATOR, 6V, 5A

A FEW ORIGINAL CONSTRUCTIONS by D.H.MOORE





PILOT "B" ELIMINATOR, 1927
(ALSO KNOWN AS "JUMBO" PWR. UNIT.)

"INFRA-DYNE" "B" & "C" ELIMINATOR
& POWER AMPLIFIER
1927

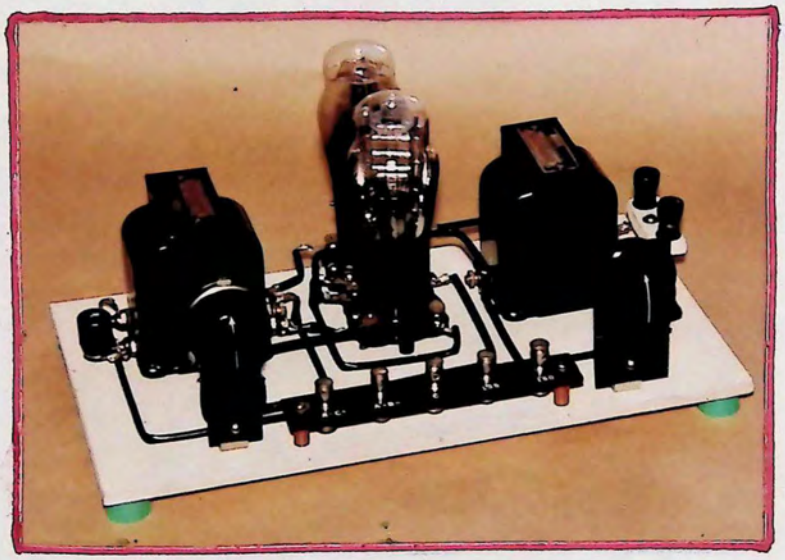
A FEW ORIGINAL CONSTRUCTIONS BY D.H.MOORE

LACAULT'S FIRST ORIGINAL CIRCUIT
'THE CONCERTA', 1923

ULTRADYNE L-1 AF AMPLIFIER
1924

SILVER-MARSHALL B-ELIMINATOR
1927

A FEW ORIGINAL CONSTRUCTIONS BY D.H.MOORE

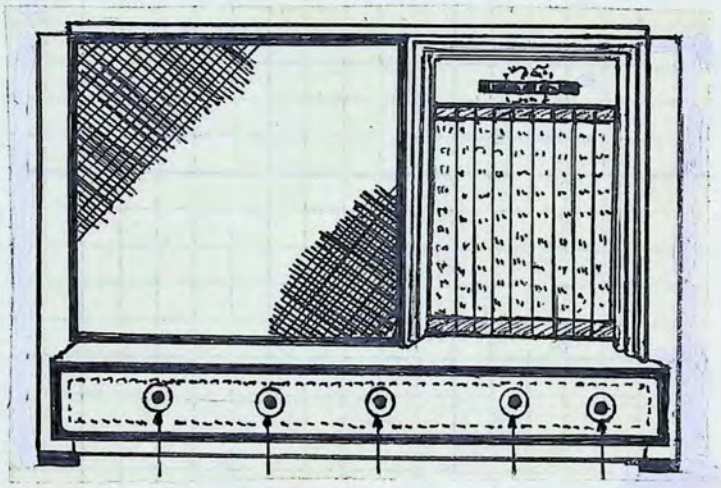


THORDARSON PUSH-PULL AMPLIFIER

1925

THIS CIRCUIT CONFIGURATION WAS ALSO USED BY SUCH FIRMS AS ACME, GENERAL RADIO, SILVER-MARSHALL, ETC.

PHILCO BC-SW RECEIVER, Model 53-960: Sht. 1



The PHILCO 900 series radio was offered in both a domestic and an export model. Both were 8-tube super-hets, combining short-wave and standard broadcast reception, employing 6.3V tubes. The same super-het circuit was used for both ranges, the I.F. being 455 KC. The tuning ranges provided were from 550 to 21,900 KC.

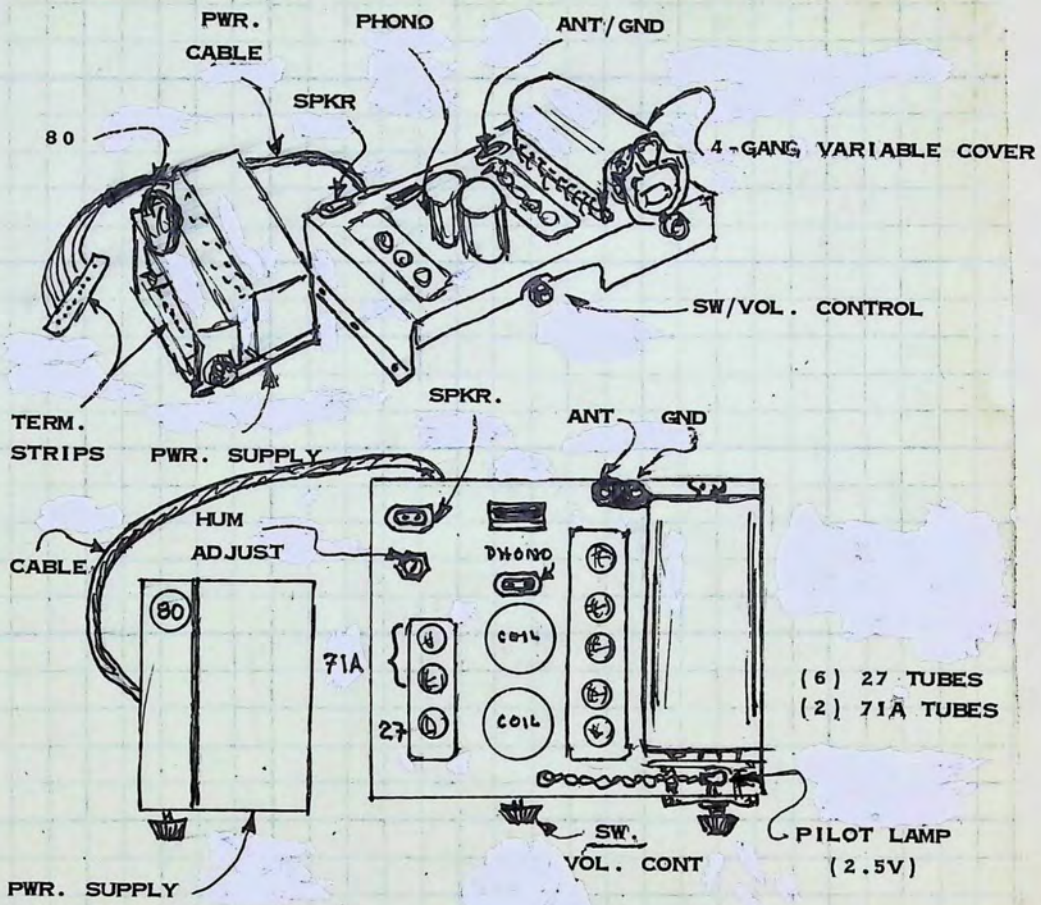
Two bands marked SW 1 and SW 2 allowed you to locate a signal, then switch to one of the six band-spread ranges for clarification. A single dynamic speaker was employed with a pair of 7B5's in push-pull for the AF output. The rectifier was a 5AZ4; the other tubes as follows:

6BA5 = this was a special Philco remote cut-off pentode, for which there is no substitute.
7B5 = pentode power amplifier. (2)
7B6 = duo-dual triode.
7E7 = duo-dual triode.
7S7 = triode hexode converter.
12AU7 = twin-triode amplifier.

With the exception of the rectifier and the 12AU7, all of the tubes listed have substitutes, all loctals. The whip antenna is very effective, even at high noon, although the set is prone to pick-up spurious noises, especially if it is near heavy machinery or hosiptal.

(RYDER VOL. XXIII.)

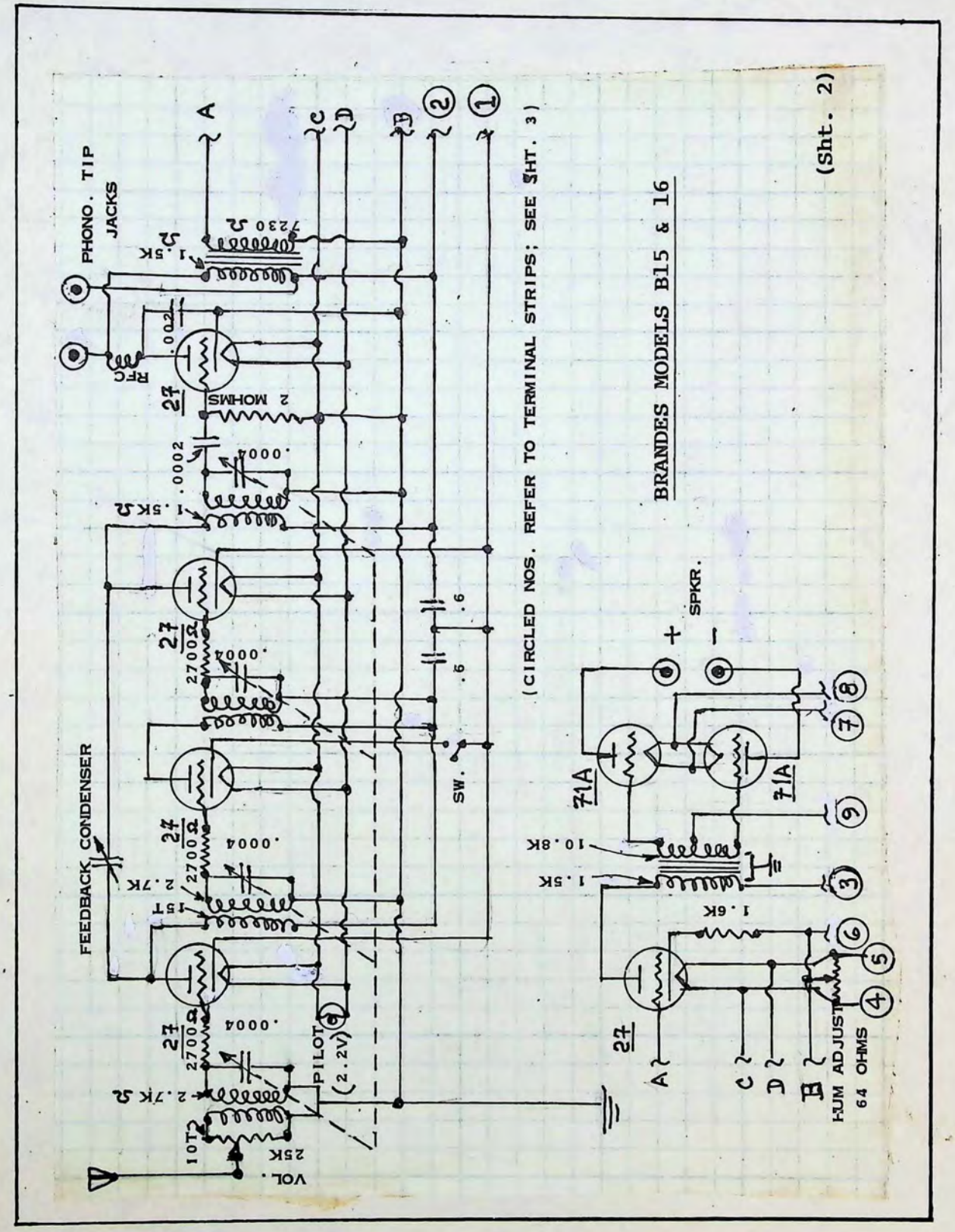
BRANDES MODELS B15 & 16, 1929; Sht. 1

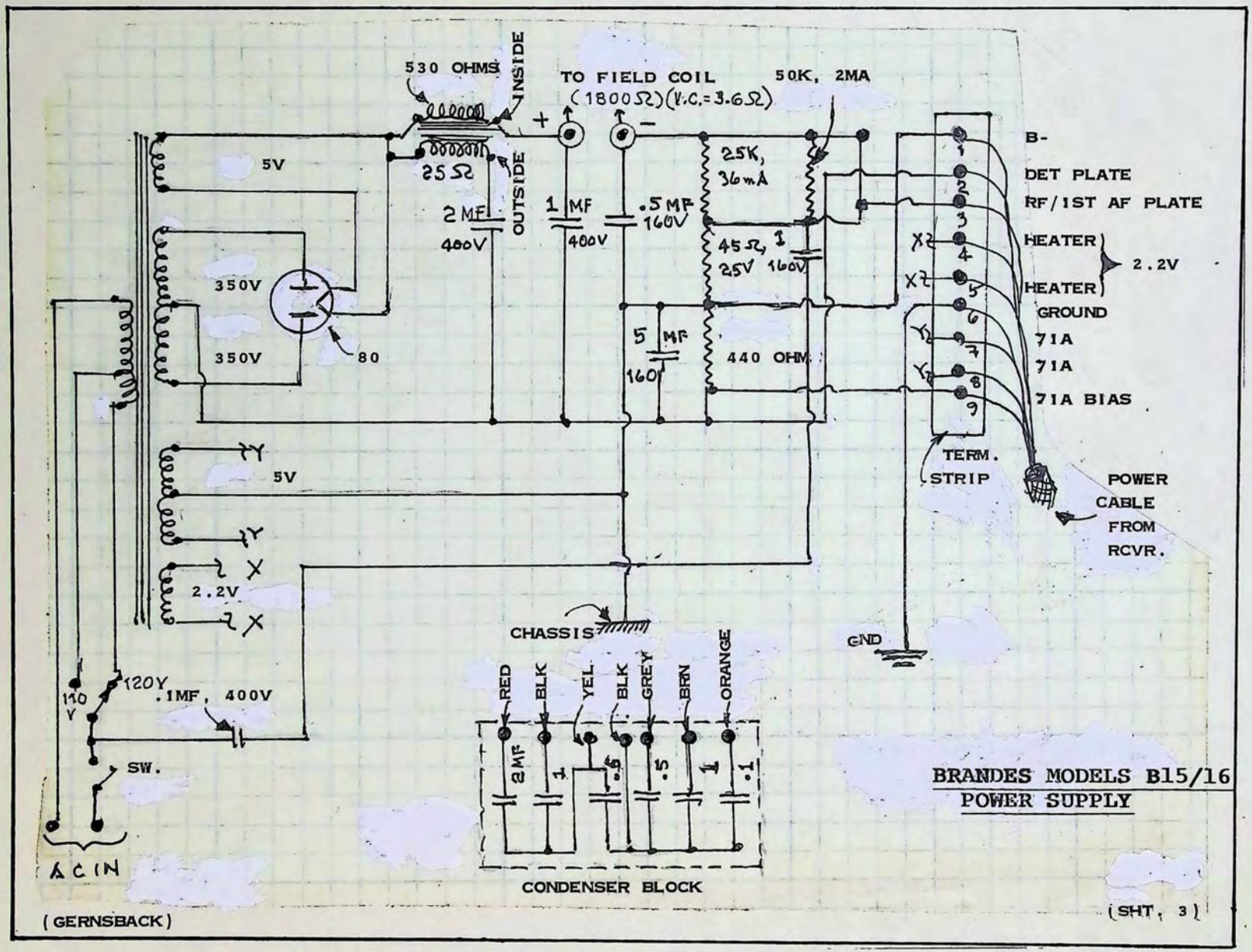


(ELECTRO-DYNAMIC SPEAKER NOT SHOWN; WAS CONVENTIONAL FOR THE TIME.)

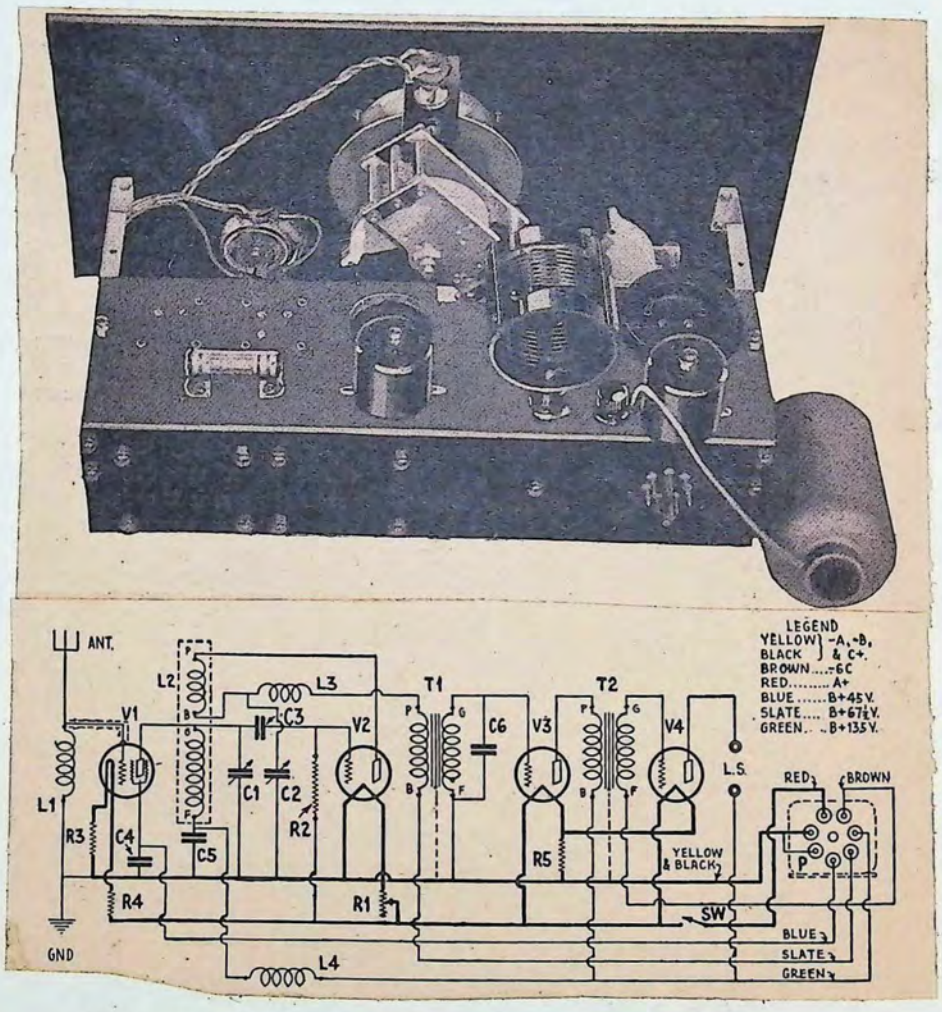
NOTE: THE KOLSTER K-29 WAS IDENTICAL IN CIRCUITRY.

(GERNSBACK 30)


BRANDES MODELS B15 & 16
(CIRCLED NOS. REFER TO TERMINAL STRIPS; SEE SHT. 3)
(Sht. 2)
PHONO. TIP JACKS
FEEDBACK CONDENSER
PILOT (2.2V)
VOL.
SW.
SPKR.
HUM ADJUST
64 OHMS
2 MOHMS
25K
1.5K
2.7K
10.8K
1.6K
.0004
.0002
.002
.6
RFC
27
71A
A
B
C
D


530 OHMS
INSIDE
OUTSIDE
25Ω
TO FIELD COIL
(1800Ω)(V.C.=3.6Ω)
50K, 2MA
2.5K, 36mA
45Ω, 25V
1 MF 160V
5V
2 MF 400V
1 MF 400V
.5 MF 160V
350V
350V
80
5 MF 160V
440 OHM
5V
2.2V
CHASSIS
GND
B-
DET PLATE
RF/1ST AF PLATE
HEATER
HEATER
2.2V
GROUND
71A
71A
71A BIAS
TERM. STRIP
POWER CABLE FROM RCVR.
110 V
120V
.1MF, 400V
SW.
AC IN
RED
BLK
YEL
BLK
GREY
BRN
ORANGE
2MF
1
.5
.5
1
.1
CONDENSER BLOCK
BRANDES MODELS B15/16
POWER SUPPLY
(GERNSBACK)
(SHT. 3)

AERO "INTERNATIONAL", 2nd VERSION



The chief difference lies in the addition of a Carter screen-grid shield, as shown.

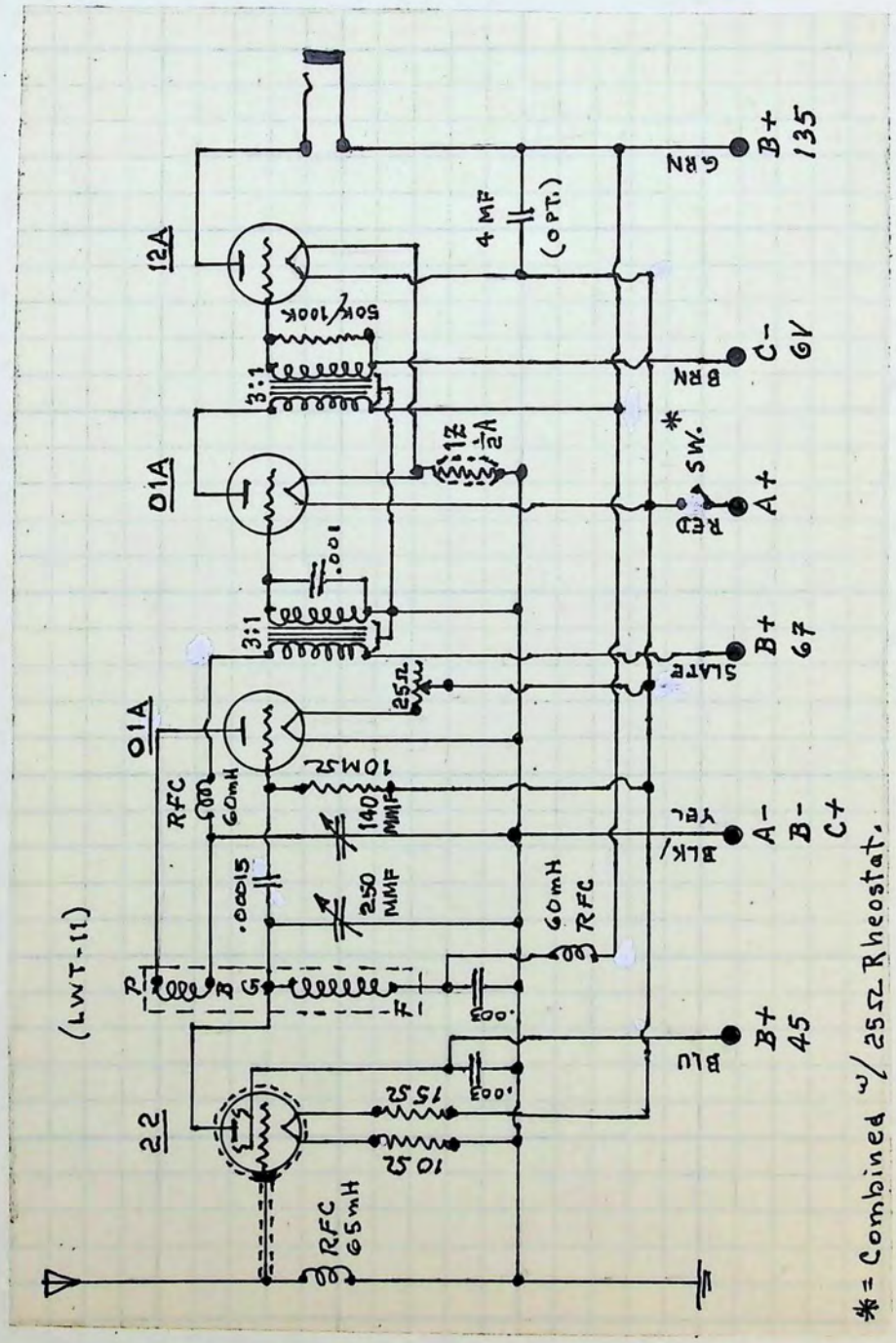
L1 = RFC 65 mH.
L2 = AERO LWT-11 Coils
L3 = RFC 60 mH.
L4 = RFC 60 mH.
C1 = 250 mmf Variable.
R1 = 25 ohms.
R3 = 10 ohms.
R5 = 1Z-½A Amperite.

T1 & T2 = 3:1 AF Xfrmrs.
C6 = .001 mfd.
C4 & C5 = .003 mfd.
C3 = .00015 mfd.
C2 = 140 mmf Variable.
R2 = 10 megohms.
R4 = 15 ohms.
V1, V2, V3 = 01A.

V4 = 12A

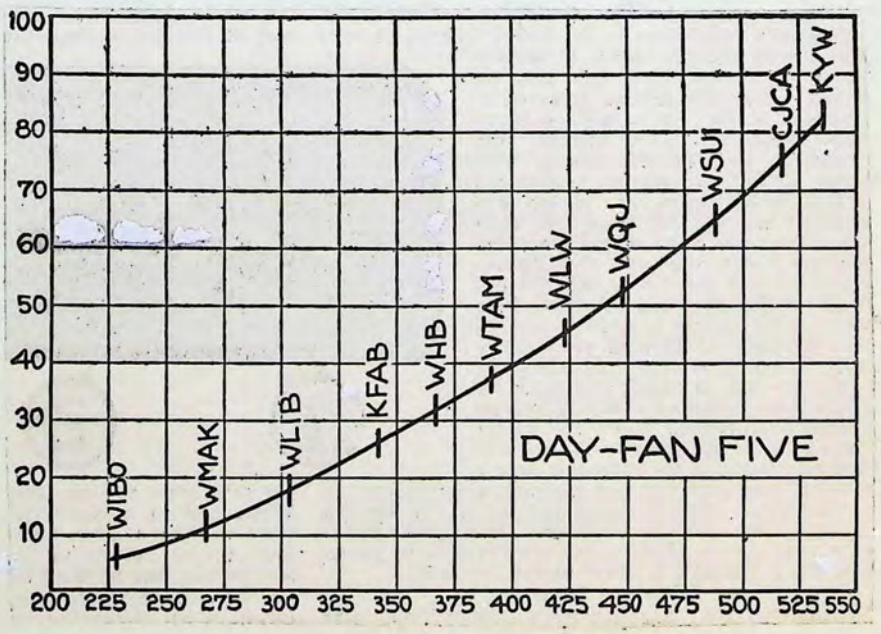
Note that the cases of the AF xfrmrs. are grounded through A-.

AERO "INTERNATIONAL", 2nd Version



DAY-FAN 5-TUBE "TELEPHONE BOOK" SET, 1923

You might want to compare this configuration with the Day-Fan receiver of the preceeding pages. The basic circuit remained the same in 4,5, and 6-tube offerings, but that such a radical physical change in cabinetry in one year is interesting.



COPY OF THE ORIGINAL CALIBRATION CHART SUPPLIED BY DAY-FAN.

DAY-FAN 5-TUBE "TELEPHONE BOOK" SET, 1923; Sht. 2

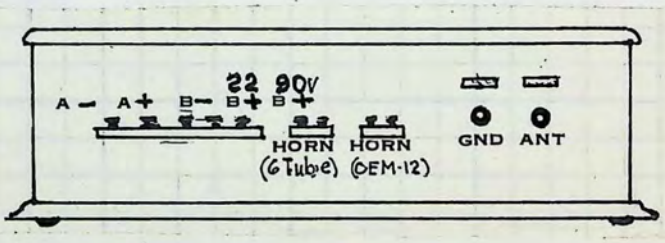
OPERATING INSTRUCTIONS

NOTE:

These instructions were issued for all models of the early Day-Fan receivers.

1. Place small knob pointers to vertical.
2. Turn centre dial fully c.c.w., then fully c.w.
3. Select station with centre dial.
4. Place speaker switch at LOUD.
5. Turn "Selectivity" switch to loudest volume.
6. If volume is too great, flip switch to SOFT.
7. Once a station is tuned in, trim with small knobs.

* * *



THE REAR VIEW OF CABINETS FOR 4,5,6-TUBE SETS

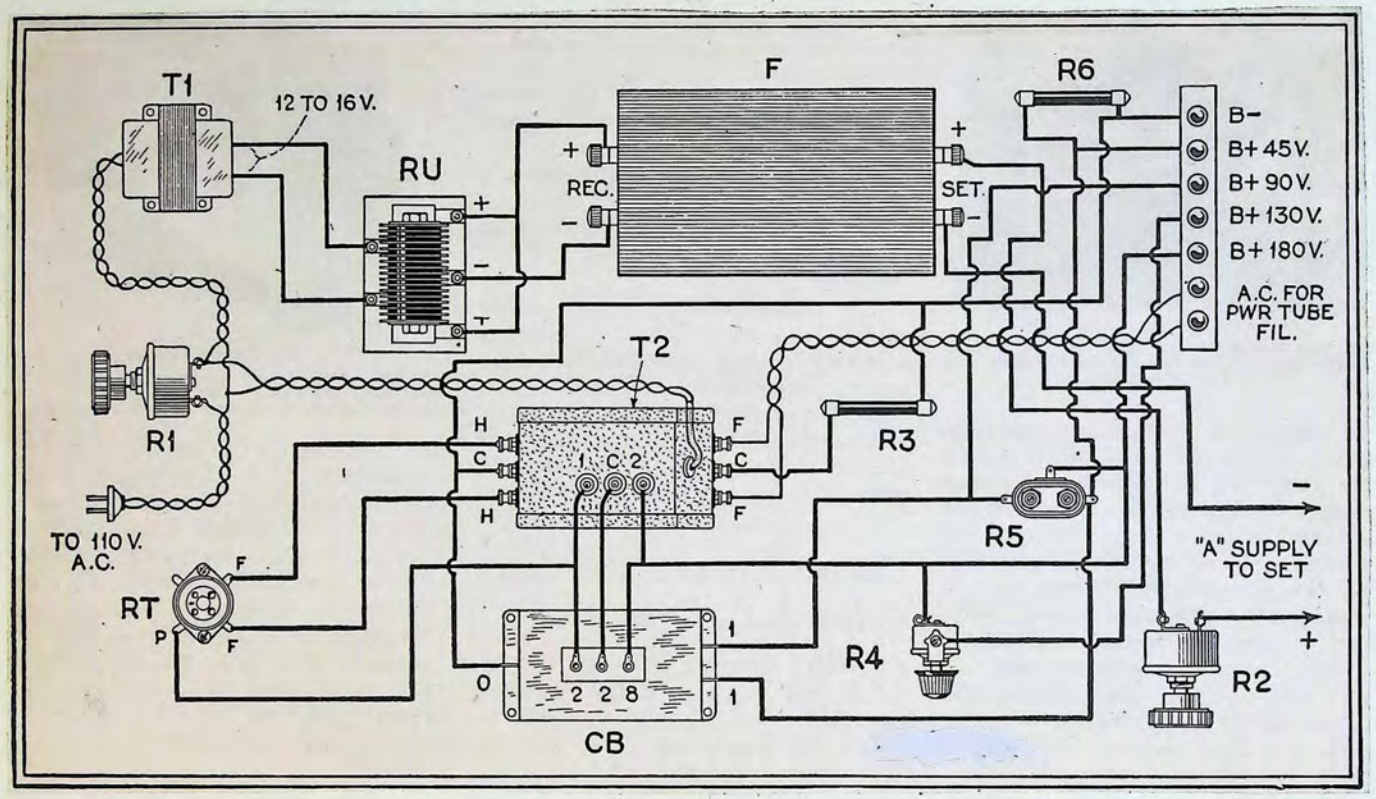
ANT = 80' of #14 single strand copper wire, with #18 rubber-covered lead-in.

(5) 01As. B+ = 90V. A+ = 6V.

A 6v wet-cell battery was recommended, and the specific gravity maintained at between 1.275 and 1.300. A good 45v B-battery should read 38v or better with a load.

* * *

THORDARSON 171 POWER COMPACT VARIANT

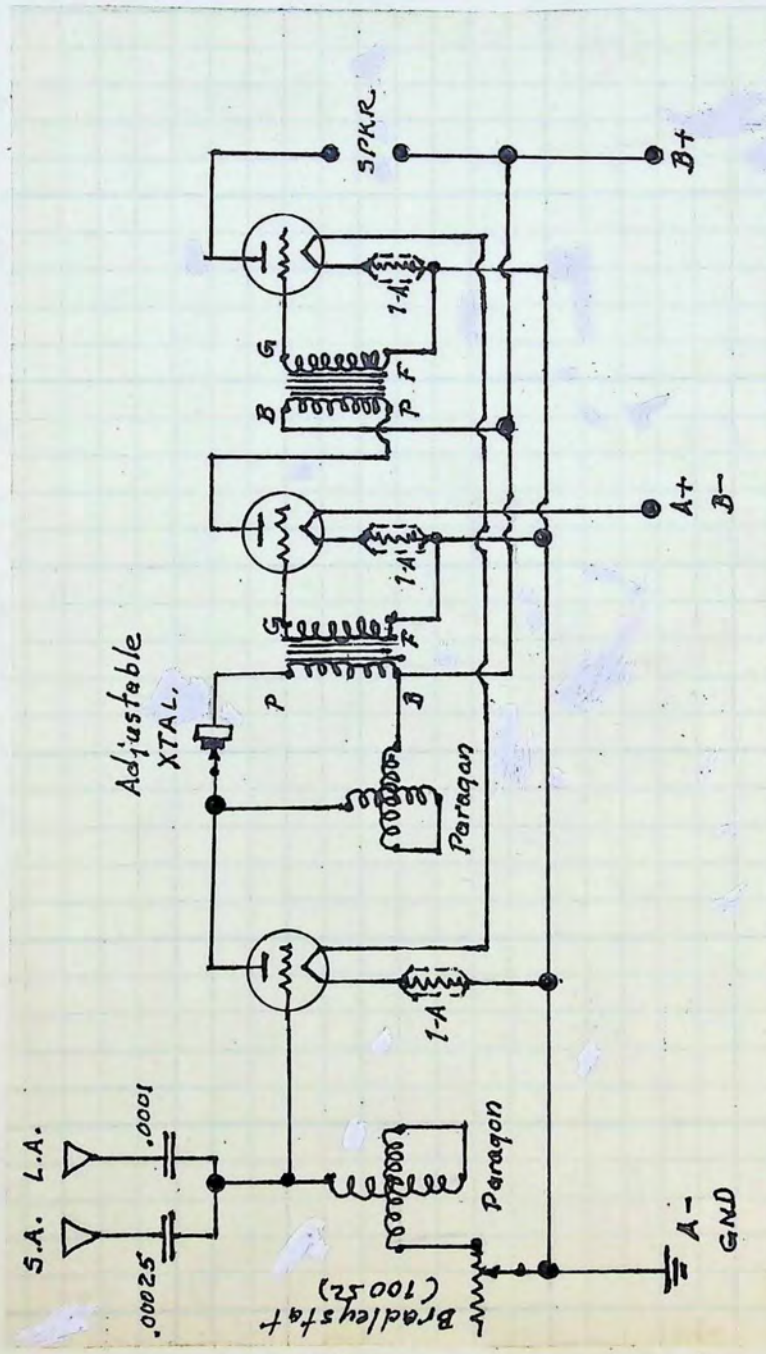


LEGEND

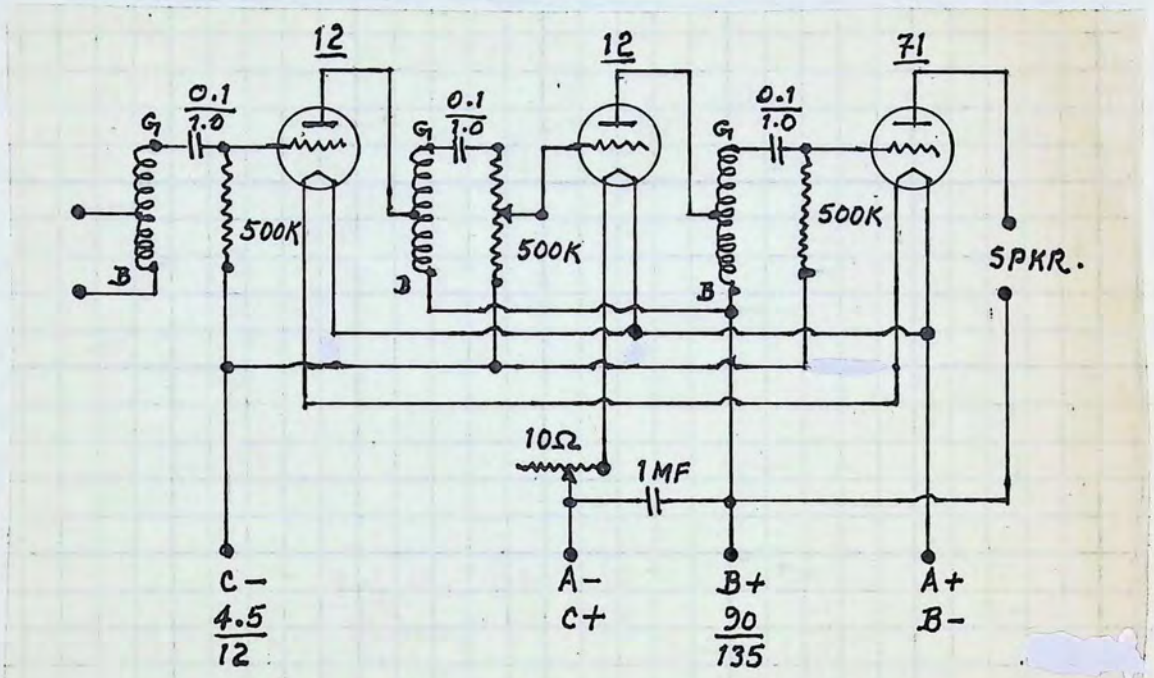
T2 - THORDARSON 171 POWER CHOKES.	T1 - TOBE 50W STEP-DOWN XFRMR.
RU - ELKON DRY-DISC RECTIFIER.	RT - RAYTHEON 'B-H' RECTIFIER.
CB - TOBE 171 B-BLOCK.	F - TOBE 'A' FILTER.
R1 - LOW RANGE CLAROSTAT.	R2 - POWER CLAROSTAT 10 W.
R3 - TOBE VERITAS 2K OHMS.	R4 - STANDARD CLAROSTAT.
R5 - DUPLEX CLAROSTAT.	R6 - TOBE VERITAS 10K OHMS.

(7) X-L EBY BINDING POSTS.

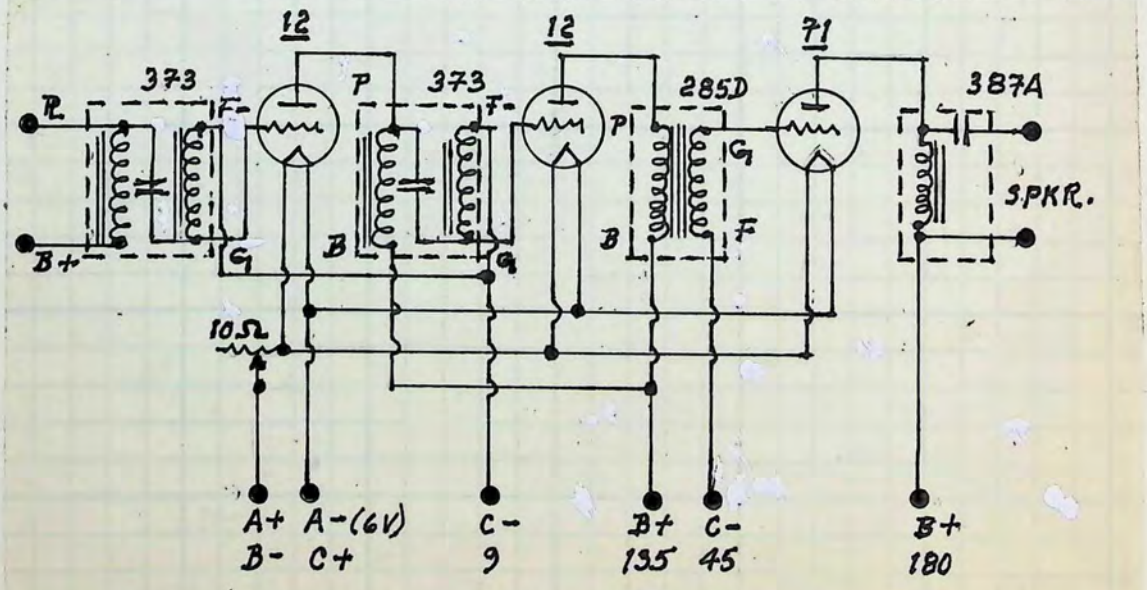
"WIRELESS AGE" 3-TUBE SET, 1923



THORDARSON AUTOFORMER AUDIO AMPLIFIER, 1926

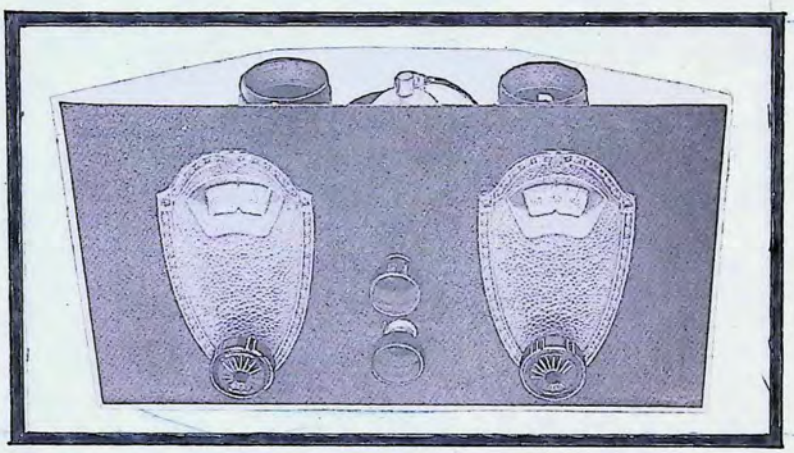


GENERAL RADIO AUTOFORMER AUDIO AMPLIFIER, 1926



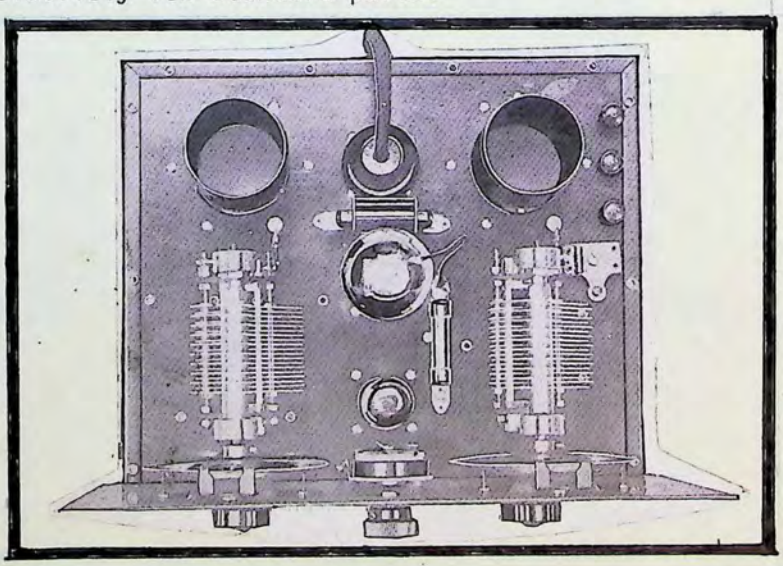
GEN-RAD Part Nos. Shown. (Note Terminal Designations.)

WOOD's "SUPERSONIC" SHORT WAVE ADAPTER, Sht. 1

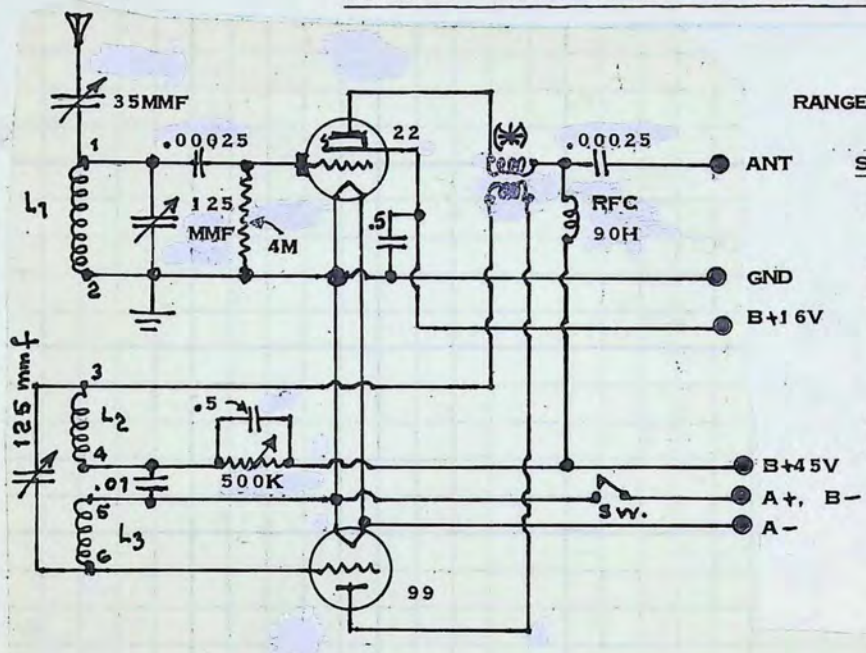


Manson E. Wood was an engineer with the National Company in Cambridge, Mass., and was also instrumental in the design of the famous National "Thrill Box". The "Supersonic" short-wave adapter proved to be a most efficient unit, and it was diligently popularised by Volney Hurd, the enthusiastic Radio Editor for "Christian Science Monitor". (Hurd also contributed to the design.)

The theory of the "Supersonic" was that amplification of frequencies in the broadcast band preceded by frquency-changing tuning resulted in good tone quality, high amplification, and selectivity, with relatively few standard parts.



WOOD's "SUPERSONIC" SHORT WAVE ADAPTER, 1928



RANGE - 15 TO 115 METERS.

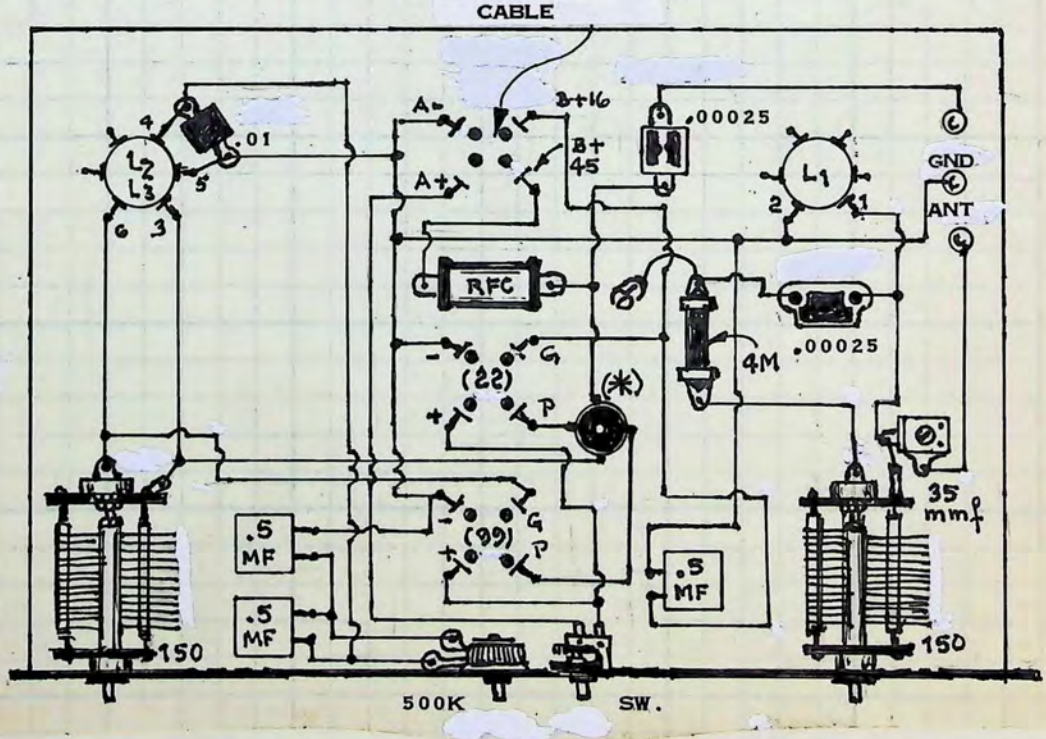
SPECIAL CPLNG. COIL

(3/4" ϕ DOWEL)

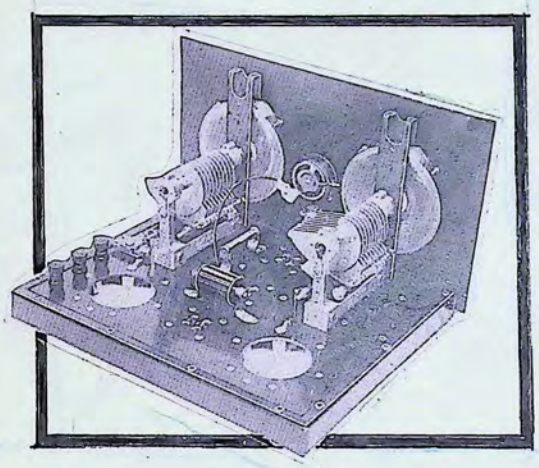
PRI & SEC ARE
3 TURNS EACH, WITH
.250" SEPERATION.

PANEL - 7" X 12"
SUB-PANEL - 9" X11"

SCKT. FOR PWR. CABLE



WOOD's "SUPERSONIC" SHORT WAVE ADAPTER, Sht. 3



The three-quarter rear view of the adapter shows that the sub-panel was a panel of Bakelite, secured to a metal framing. The front panel also was Bakelite.

The large open holes shown were for the two coils, with a rather tricky set of contacts, reminding one of the early hexagonal S-M plug-in coils.

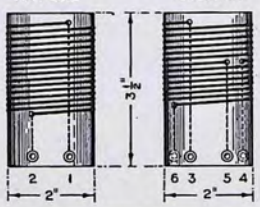
When I constructed this unit, I substituted sub-panel sockets, and secured the base of a 4-prong tube , so that the coils could be simply plugged-in. They coils be made permanent, if you wish to use only one set of coils shown below.

With the availability of much higher short-wave frequencies that have been reached since Hitler's War, you might care to wind your own coils to reach those frequencies, and play them through your TRF or super-het. (The adapter does not work too well with regenerative, super-regenerative, or reflex circuits.)

The coils were wound with #16 enamelled wire.

DATA FOR COIL WINDING

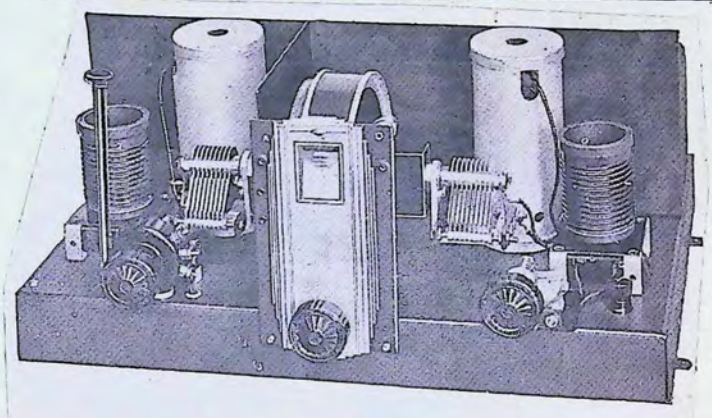
ANT COIL OSC. COIL



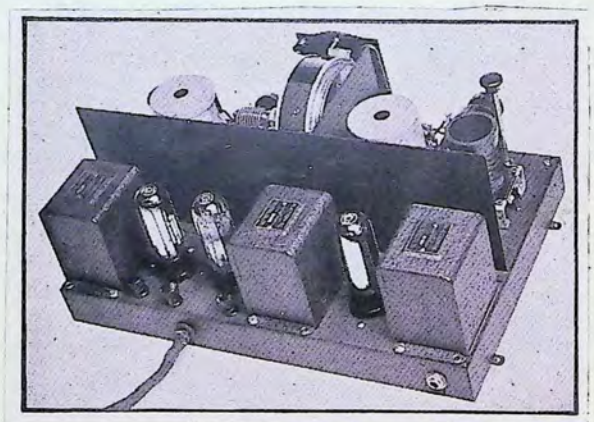
COIL NO	ANT COIL	OSC. COIL	
		TOP	BOTTOM
A	5 T	3 T.	2 T
B	7 T.	4 T	3 T.
C	13 T	7 T	6 T
D	25 T	13 T	12 T

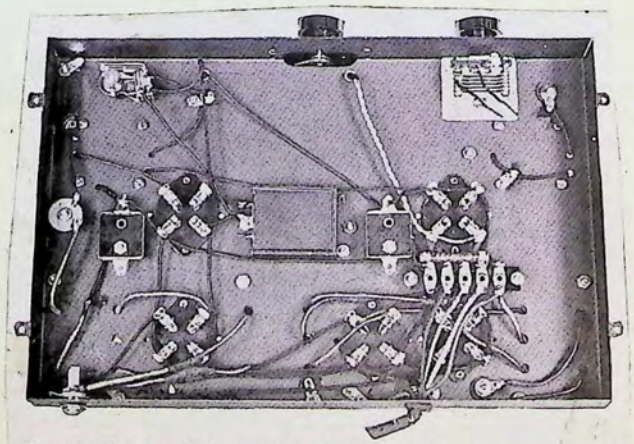
ALL COILS WOUND WITH Nº 16 E. WIRE

NATIONAL "THRILL BOX" BATTERY SET, ORIGINAL, 1928



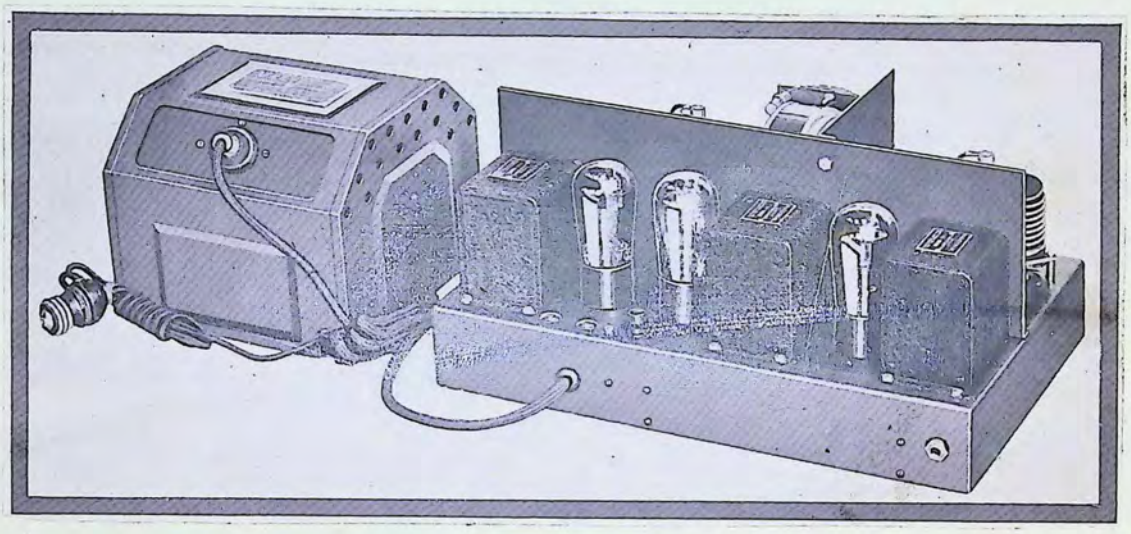
A front view of the National battery-operated Thrill Box.



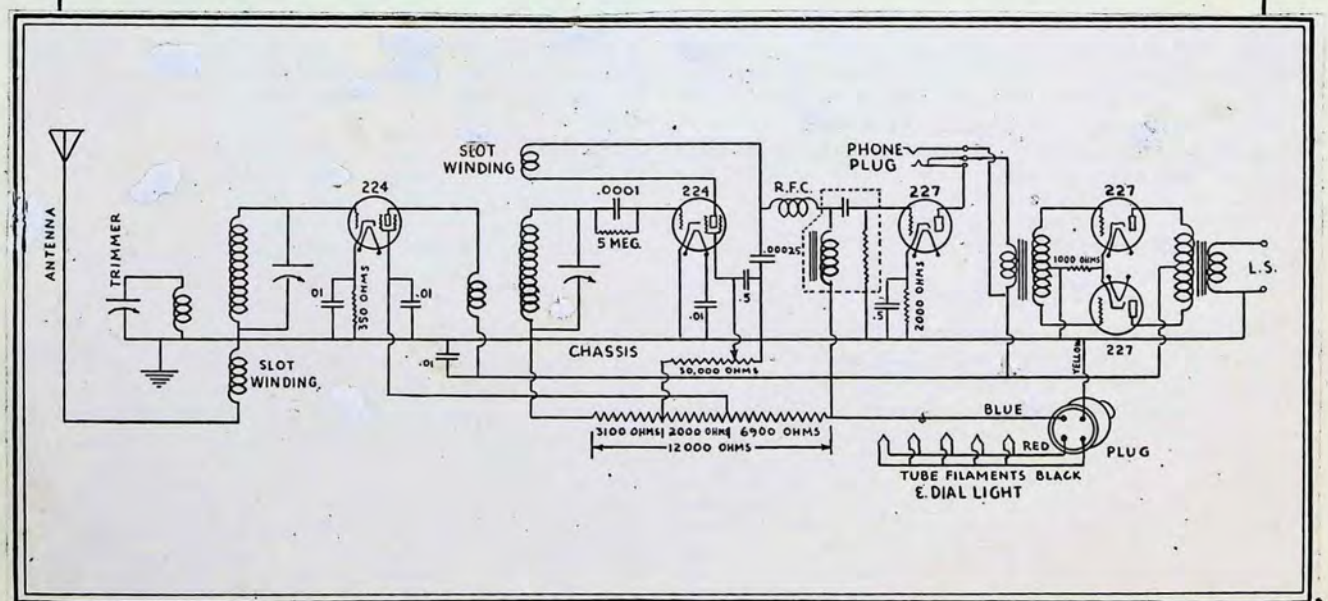


Practically all of the wiring of the receiver is accomplished underneath the chassis of the receiver.

NATIONAL "THRILL BOX" AC RECEIVER, 1928; Sht. 1

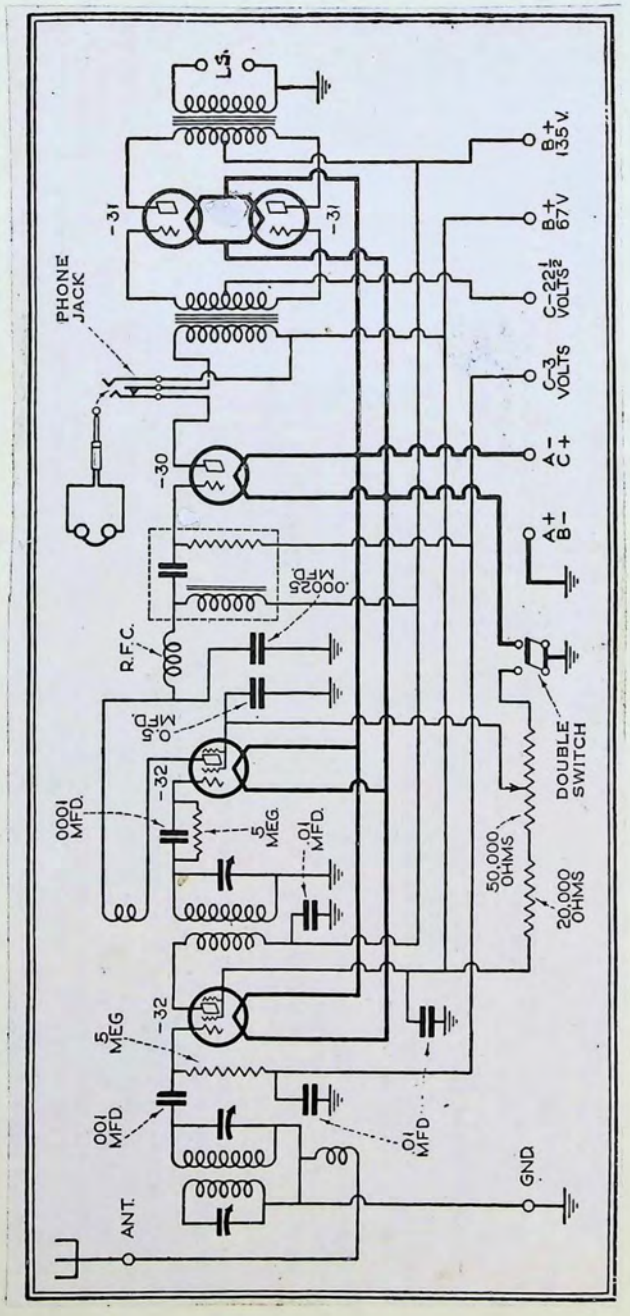


THREE-QUARTER REAR VIEW WITH COVER REMOVED

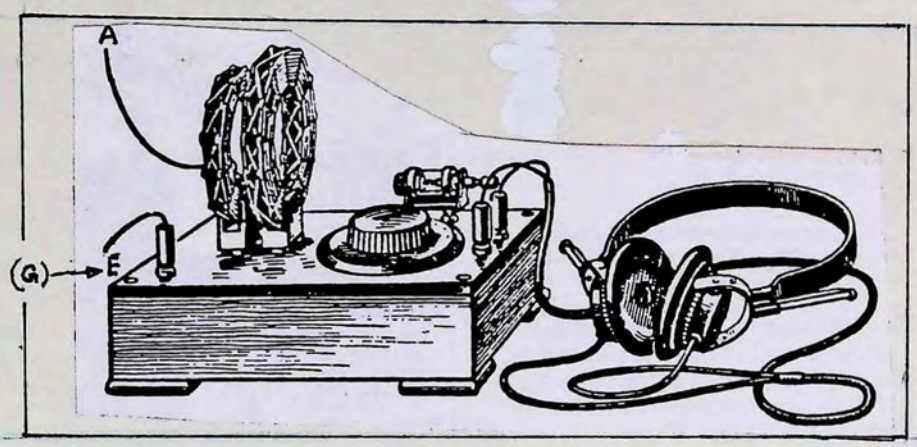


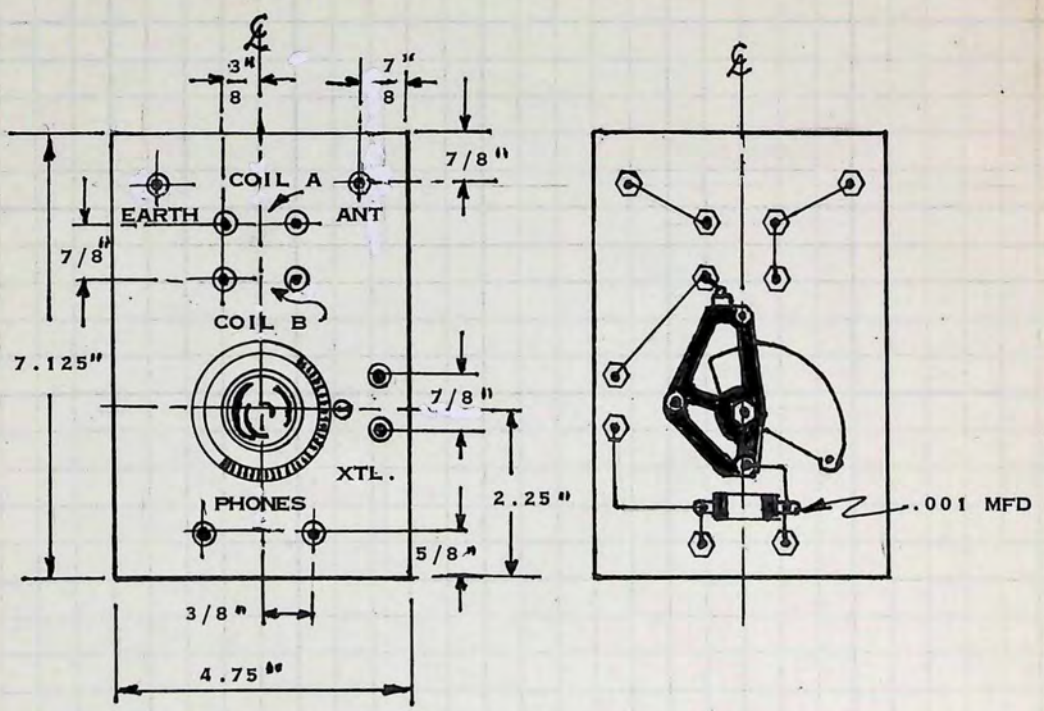
You will note that the AC version of the "Thrill Box" is almost identical to the battery-operated set. For values of components not shown, refer to the battery model schematic - they are the same.

NATIONAL "THRILL BOX" AC RECEIVER, 1928; Sht. 2



A EUROPEAN CRYSTAL SET, 1922





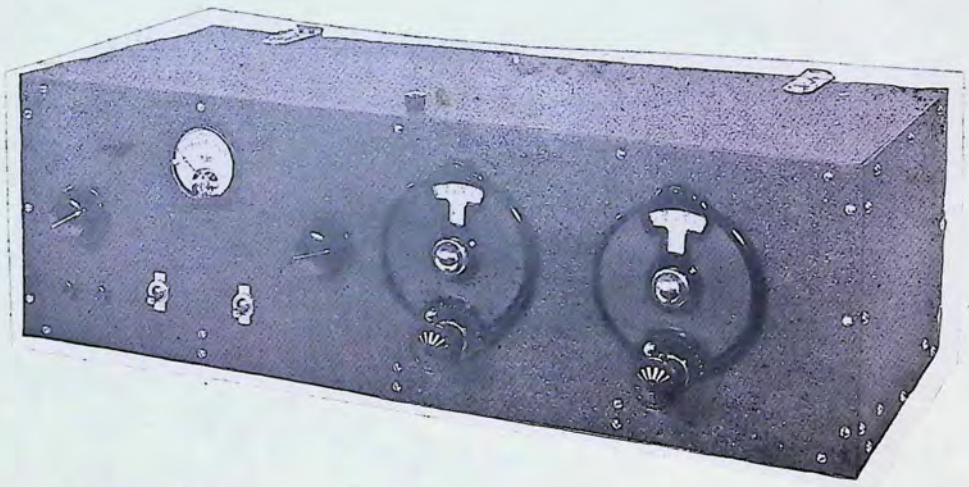
GENERAL PARTS LIST

EBONITE PANEL (BAKELITE CLONE).
50 MMF VARIABLE CONDENSER.
CRYSTAL DETECTOR.
DIAL POINTER.
COIL A - 25T & 75T (200 TO 600 METERS).
COIL B - 100T & 200T (1000 TO 2000).

(BVWS)

Vol VIII

"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927/1928



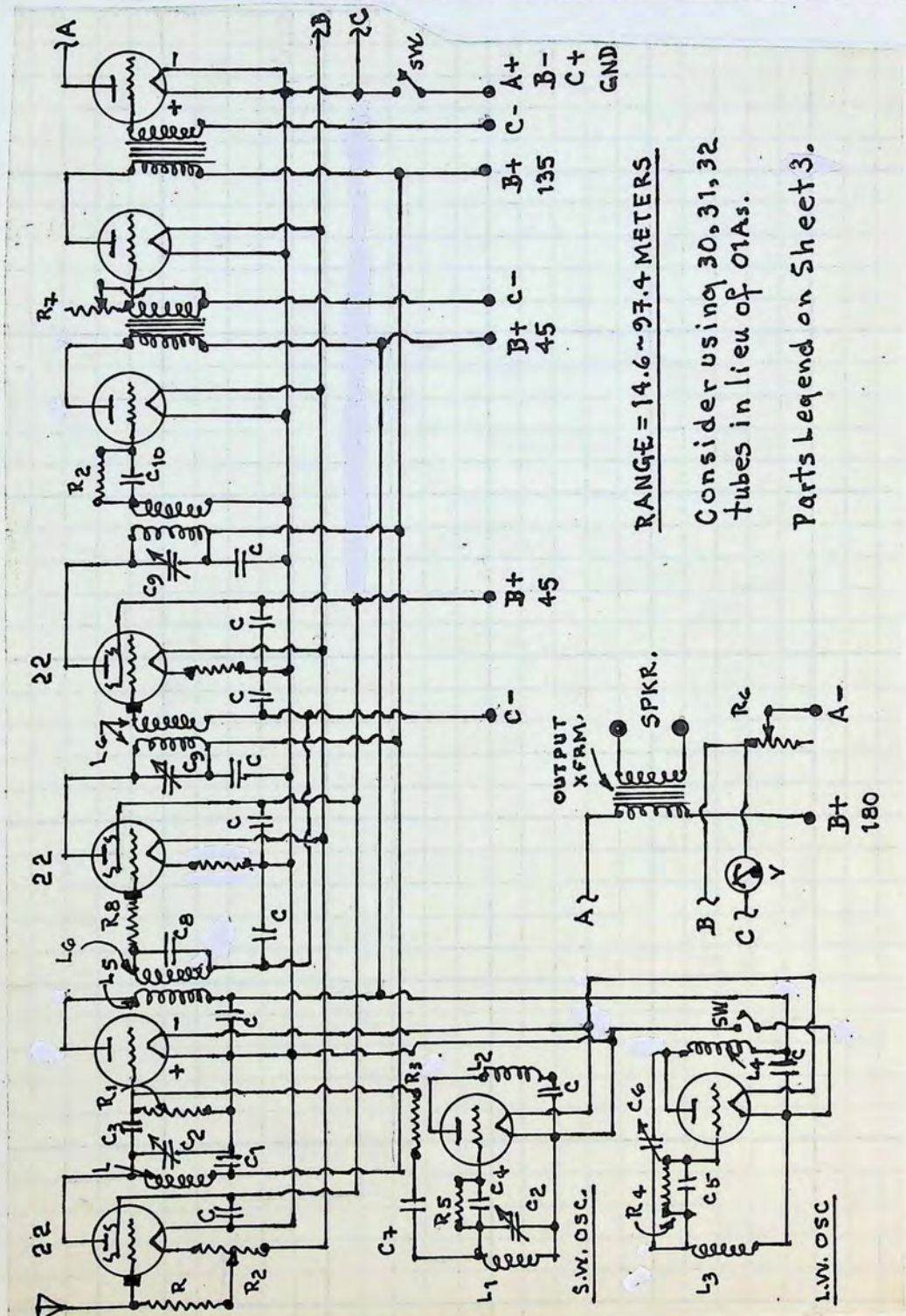
The late Twenties saw the rise in dominance of the super-het, and in the Thirties its dominance was completed by commercial interests. The idea of a short-wave super-het was slow in being realised until the state-of-the-art made a magnum leap in the early Thirties, but that is not to say engineers didn't try.

In 1927 Hugo Gernsback commissioned Fred H. Schnell, former Lt. Commander of the U.S.Navy, who retitred to become Chief Engineer of the Radio & Television Institute of Chicago, to design a short-wave super-het. The following pages depict Schnell's receiver.

The receiver is remarkably sensitive and selective, even by today's standards, and the shielding is quite rational. (An earth GND is absolutely essential.) The then-new 22 tubes were employed, and the so-called secret of its sensitivity and selectivity was in the coils employed, both RF and IF. These were not commercially available, you have to wind your own, and according to Schnell, more than 1,000 cut-&-try windings were made and tested, before he came up with the coil data shown herein. A close examination of such data will reveal that the coils are not difficult to wind, but are critical.

The use of the Carter screen-grid tube shields within a totally enclosed metal cabinet was later shown to be redundent, and Goat's thin-walled shields were used with equal success. (The Goat shields sold for 5¢ a piece!)

"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927; Sht. 2



"RADIO NEWS" SHORT-WAVE SUPER-HET, 1928; Sht. 3

PARTS LIST

R = 20K Resistor.
R1 = 2M-ohms Grid-Leak.
R2 = 8M-ohms Grid-Leak.
R3 = 100K Resistor.
R4 = 500K Grid-Leak.
R5 = 30K Resistor.
R6 = 10-ohm, 20 W. Rheostat.
R7 = 500K Potentiometer.
R8 = 20K/100K Resistor (Depending On Tube Used.)
R9 = 13-ohm Resistor Tapt at 10-ohms.
R10 = 13-ohm Resistor.

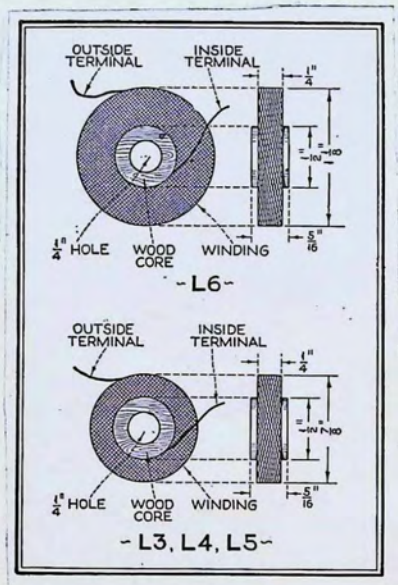
C = .25 mfd Midget Variable.
C1 = .01 mfd Capacitor.
C2 = Nat'l. Type EC-50 "Equicycle" Variable (2).
C3 = .00015 mfd Capicitor.
C4 = .00025 mfd " .
C5 = .00025 mfd " .
C6 = Nat'l. Type ST Midget Variable.
C7 = .002 mfd Capicitor.
C8 = .000050 mfd Capacitor.
C9 = Nat'l. Type ST Midget Variable.
C10 = .00025 mfd Capicitor.

L, L1, L2 = Plug-in Coils - See Coil Data Chart.
(Coils May Be wound on S-M or Nat'l. R-39.)
L5, L6 = Filters.
L6 = IF Transformers (4).

AT-1, -2 = Nat'l. AF Transformers.
OT = Nat'l. P-10 Output Transformers.
V = Jewell #135 Voltmeter (0-8V).
T1, T3, T4 = 22 Tube w/ Shields.
T2, T5, T8, T9 = o1A Tubes.
T6 = 12 or 12A Tube.
T7 = 71 or 71A Tube.

Eby Binding Posts (11).
Panel = 7" x 22" x 1/16".
Base = 9" x 22" x 1/8".

"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927; Sht. 4



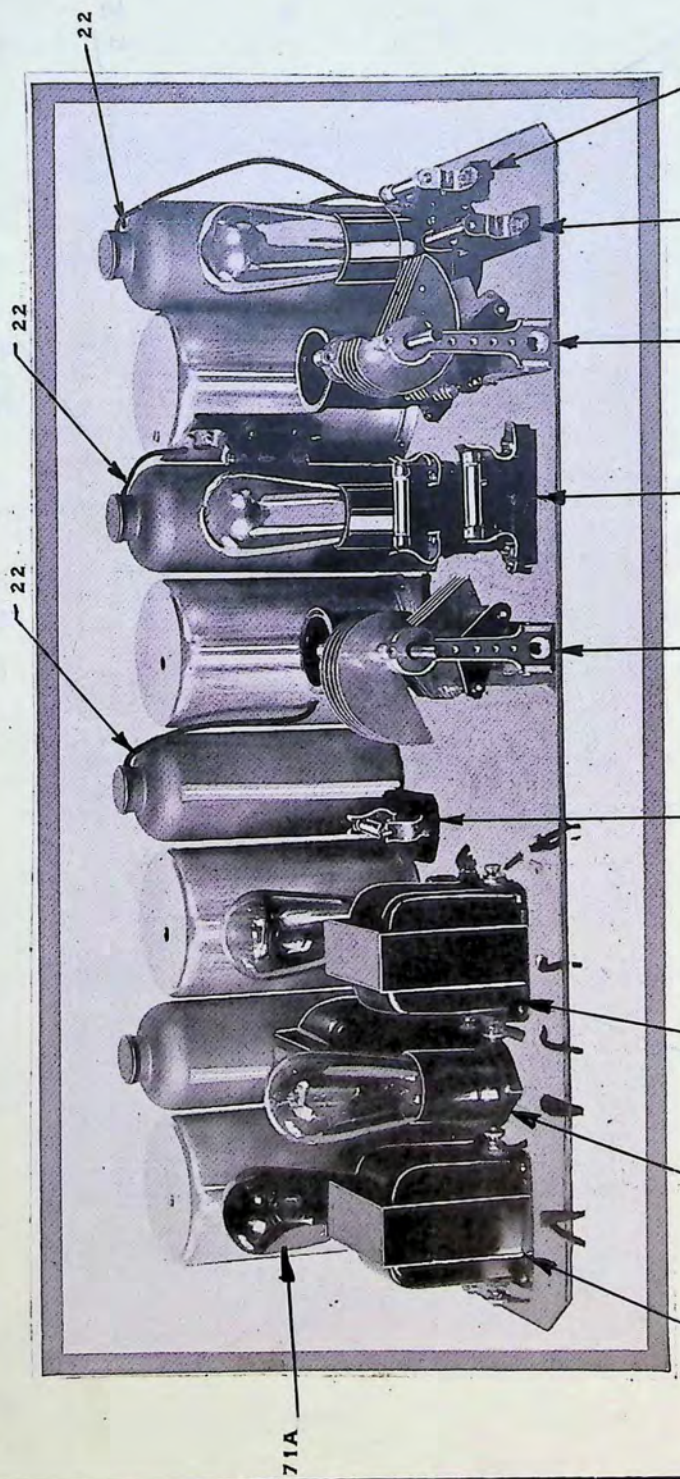
Coil winding details for the home-made coupling units of L3, L4, L5, L6. The table below gives further data on these coils

ALL COILS WOUND WITH NO. 36 SSC WIRE, IN BASKET-WEAVE PATTERN.

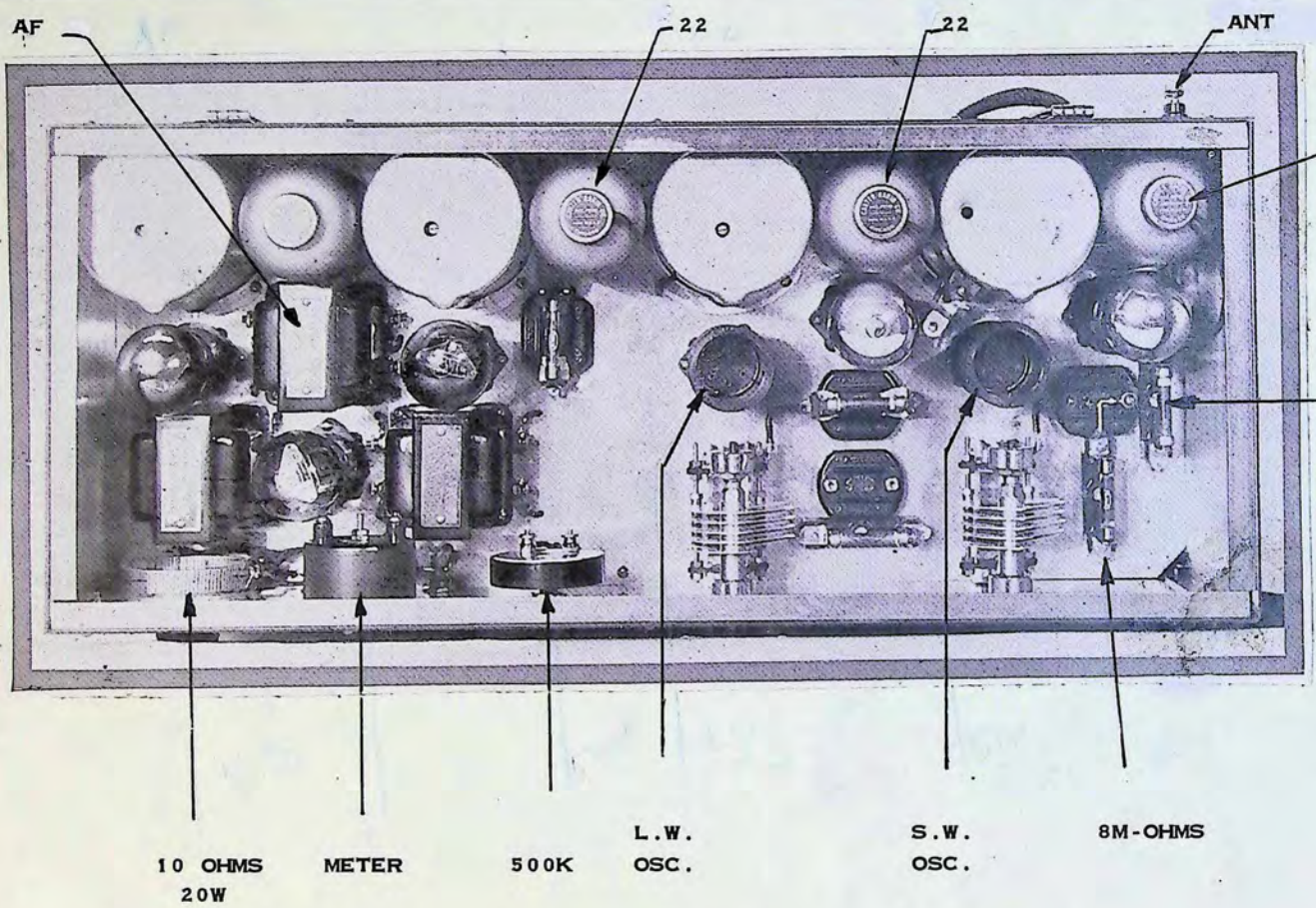
TABLE ONE

Primary Coil	*Secondary Coil*	*Voltage Amplification*	*Wavelength in Meters*
1140 turns	1140 turns	73 per stage	1,970
900 "	1140 "	64 " "	1,725
*900 "		70 " "	1,655
900 "	1260 "	61 " "	1,945
†900 "	900 "	69 " "	1,485
1260 "	900 "	64 " "	2,138
1260 "	400 "	19 " "	2,060
1140 "	800 "	64 " "	1,810
400 "	285 "	27 " "	533
400 "	400 "	47 " "	575
‡1140 "	1140 "	64 " "	1,728
§550 "	550 "	58 " "	1,175

"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927; Sht. 5



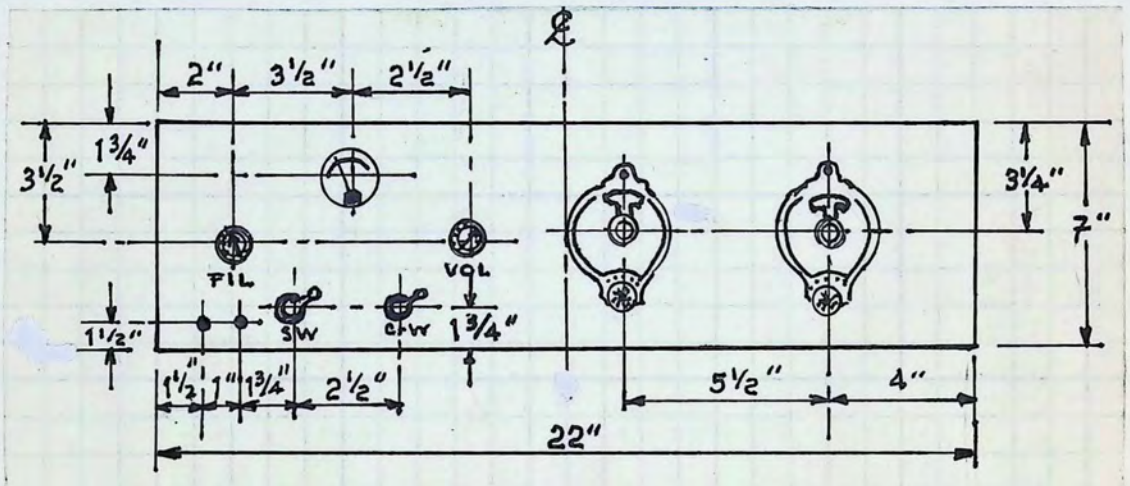
Three-Quarter Rear View showing placement of parts; refer to Sht. 6 for parts not identified above.



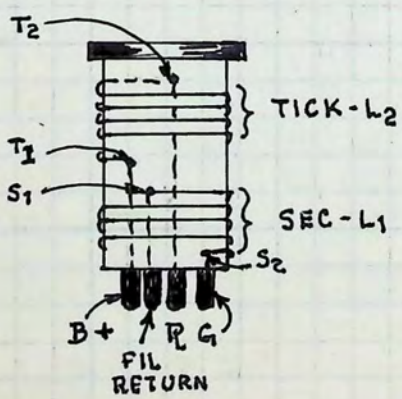
"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927; Sht. 6

Plan View showing placement of parts; refer to Sht. 5 for identification of parts not referenced above.

"RADIO NEWS" SHORT-WAVE SUPER-HET, 1927; Sht. 7



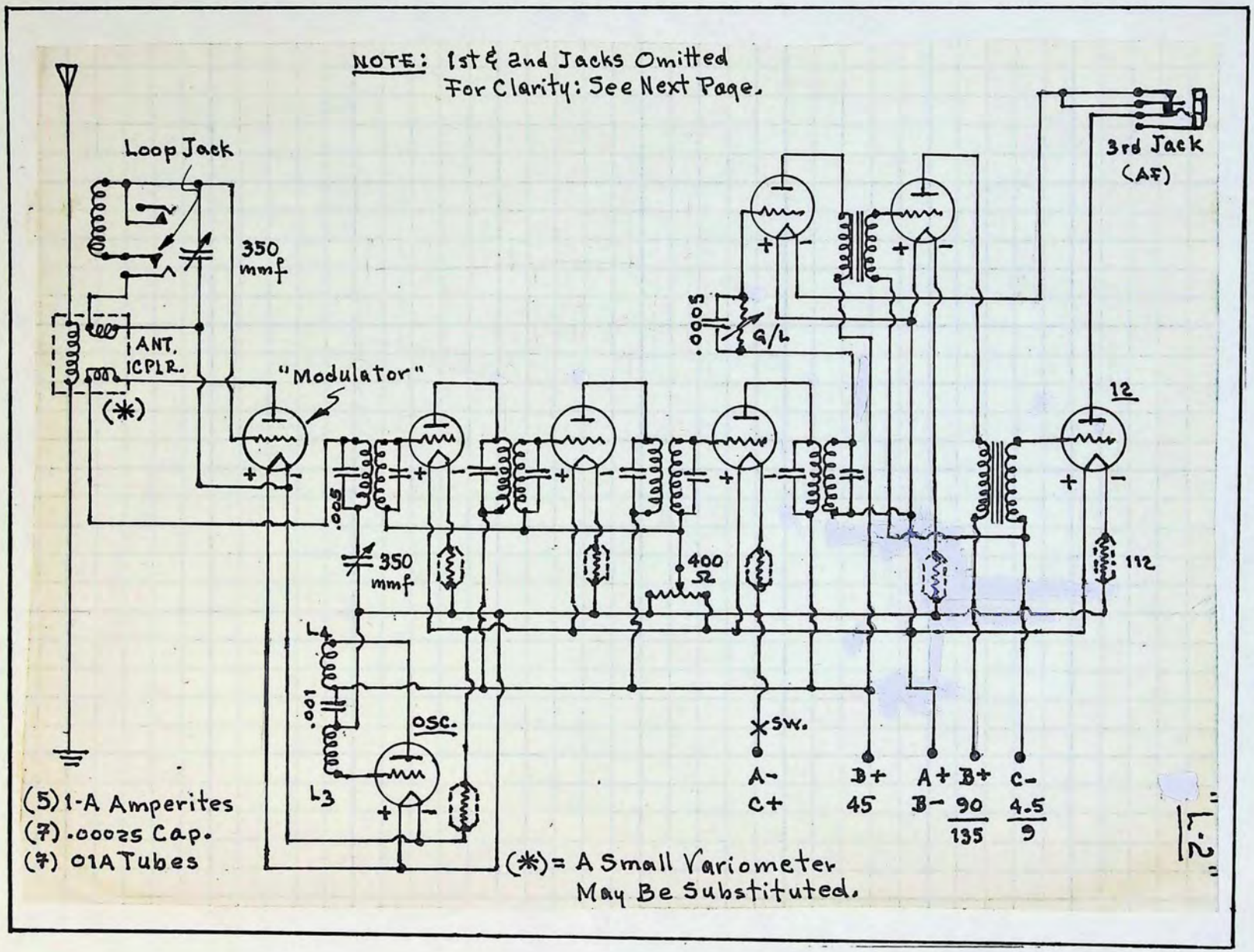
PANEL LAYOUT

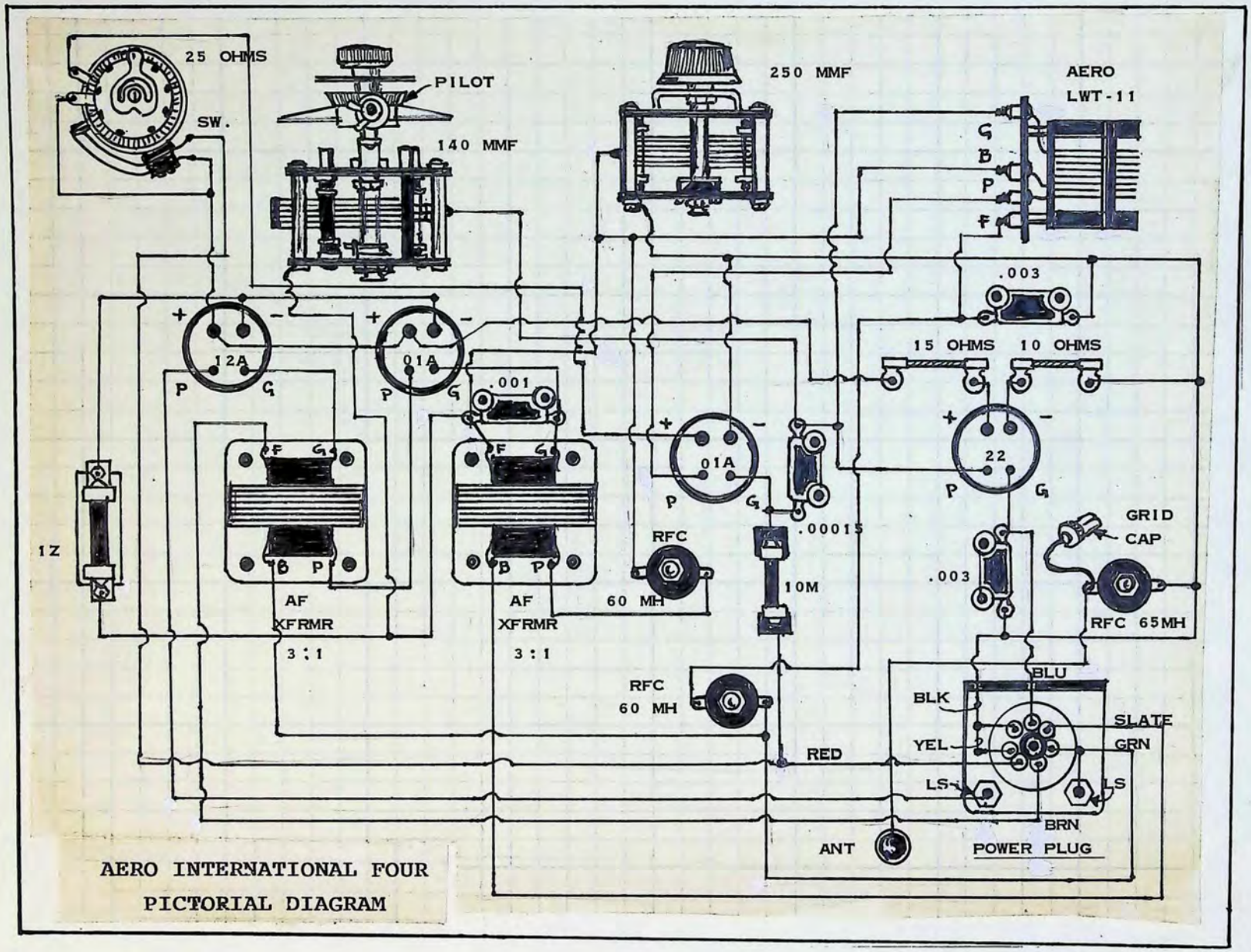


COIL DATA

COIL	DET	SEC	TICK	RANGE
A	4T	3.5T	3T	15 - 19
B	6T	4.5T	4T	18 - 27
C	7T	6.5T	4T	25 - 37
D	10T	10.5T	5T	35 - 51
E	22T	21.5T	12T	72 - 97

ALL COILS WOUND ON NATIONAL R-39 COIL FORM WITH NO. 26 DSC WIRE.


NOTE: 1st & 2nd Jacks Omitted
For Clarity: See Next Page.
Loop Jack
350 mmf
ANT. ICPLR.
(*)
"Modulator"
.005
350 mmf
400 Ω
L4
.001
L3
OSC.
.0005
G/L
3rd Jack (AF)
12
112
SW.
A-
C+
B+
45
A+
B-
B+
90
135
C-
4.5
9
(5) 1-A Amperites
(7) .00025 Cap.
(7) 01A Tubes
(*) = A Small Variometer
May Be Substituted.
L-2



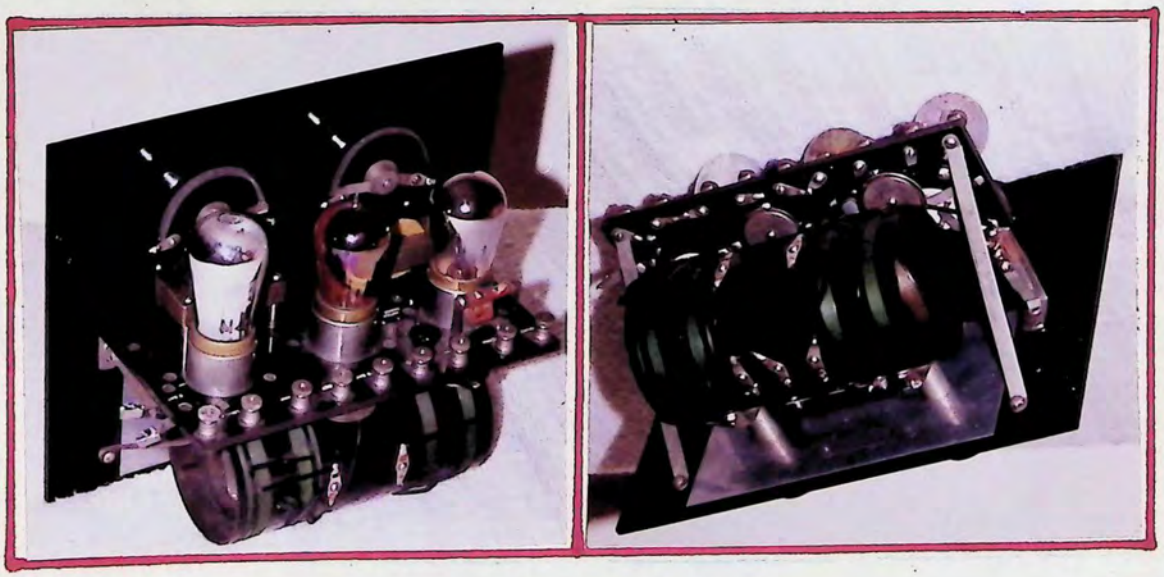
AERO INTERNATIONAL FOUR
PICTORIAL DIAGRAM

ECHOPHONE

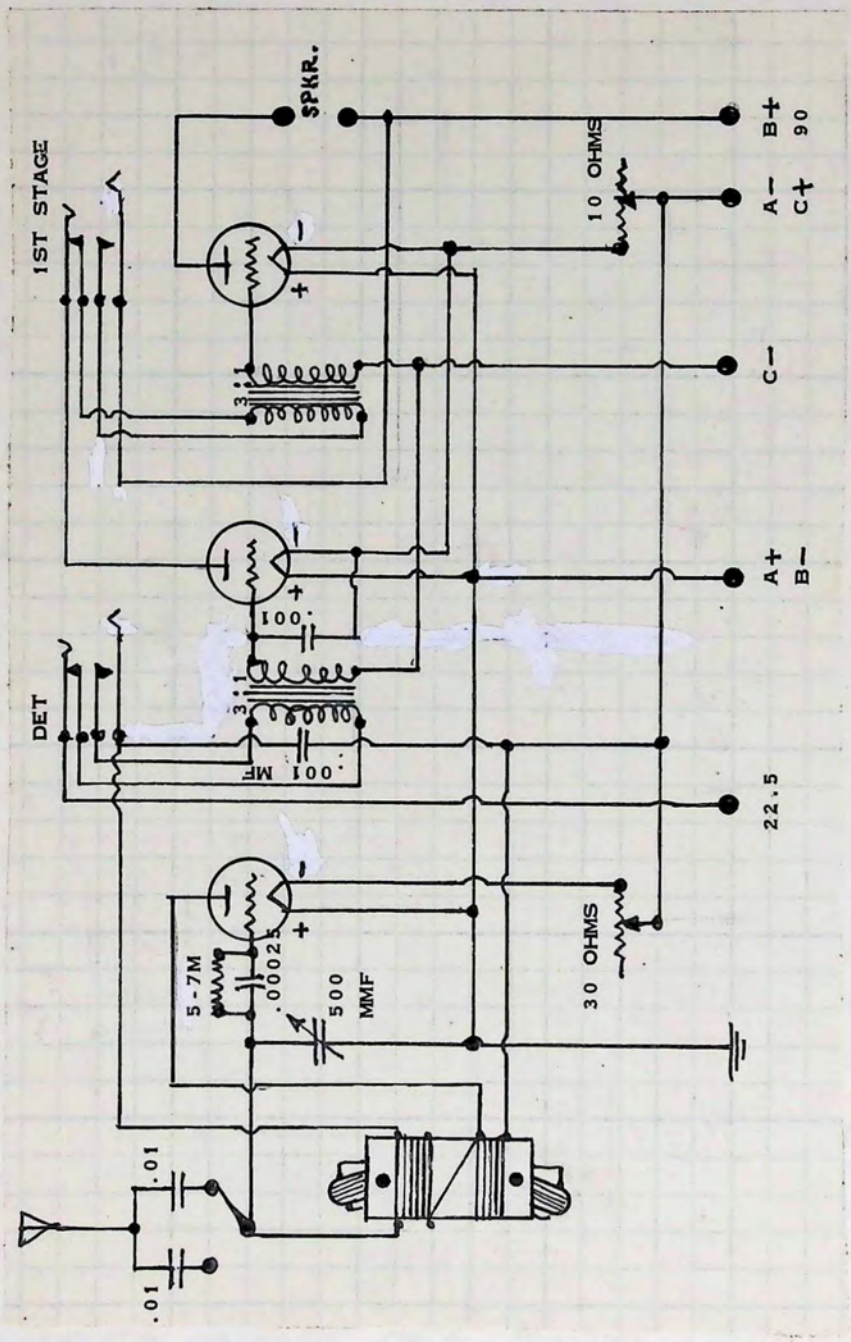
MODEL A

1923

The Echophone Model "A" was the most popular of the Echophone sets produced in Sunnyvale, California, Chicago, and Los Angeles. It was the first commercially successful set to combine regeneration and AF. Well-made and dependable, within the limits of the state-of-the-art of the period, the Echophone enjoyed a continuing popularity well into the Thirties, when the line was bought by Hallicrafter. Those who remember the last Echophone, the Commercial "E", will nod.



ECHOPHONE MODEL "A", 1923



Freshman Biographical Addenda

Chas. F. Freshman was born in Chicago in 1889. He was educated in Chicago & NYC. He went into the rubber business (manufacturing) in the center of the tire industry, Akron. The business was successful & he retired a comparatively wealthy man @ the age of 37. He retired to Florida in 1923, & decided that retirement was for the birds.

His entry into Radio came about through his reaction to hearing a World Series broadcast in 1921. He immediately returned to N.Y.C. & leased a loft in lower Manhattan to produce parts for Radio. His first offering was his "Antennal," a socket apparently aerial, which retailed for 75¢.

In 1923, w/ a capitalization of $500,000, he introduced the Freshman "Masterpiece" in August of that year, & the rest is history, as they say. The Freshman "Masterpiece" was the Model T of early Radio, & , like the Model T, enjoyed phenomenal popularity & remained for several years without change. In terms of latter-day statistics, the following could be of academic interest as of 1925:

Bronx Plant = 9,100 employees: production was of 2,000 sets each day; 56,000 sqp. ft.

Chicago Plant: 50,000 sqp. ft; 3000 sets per day.

N.Y.C. Plant = 40,000 sqp. ft.

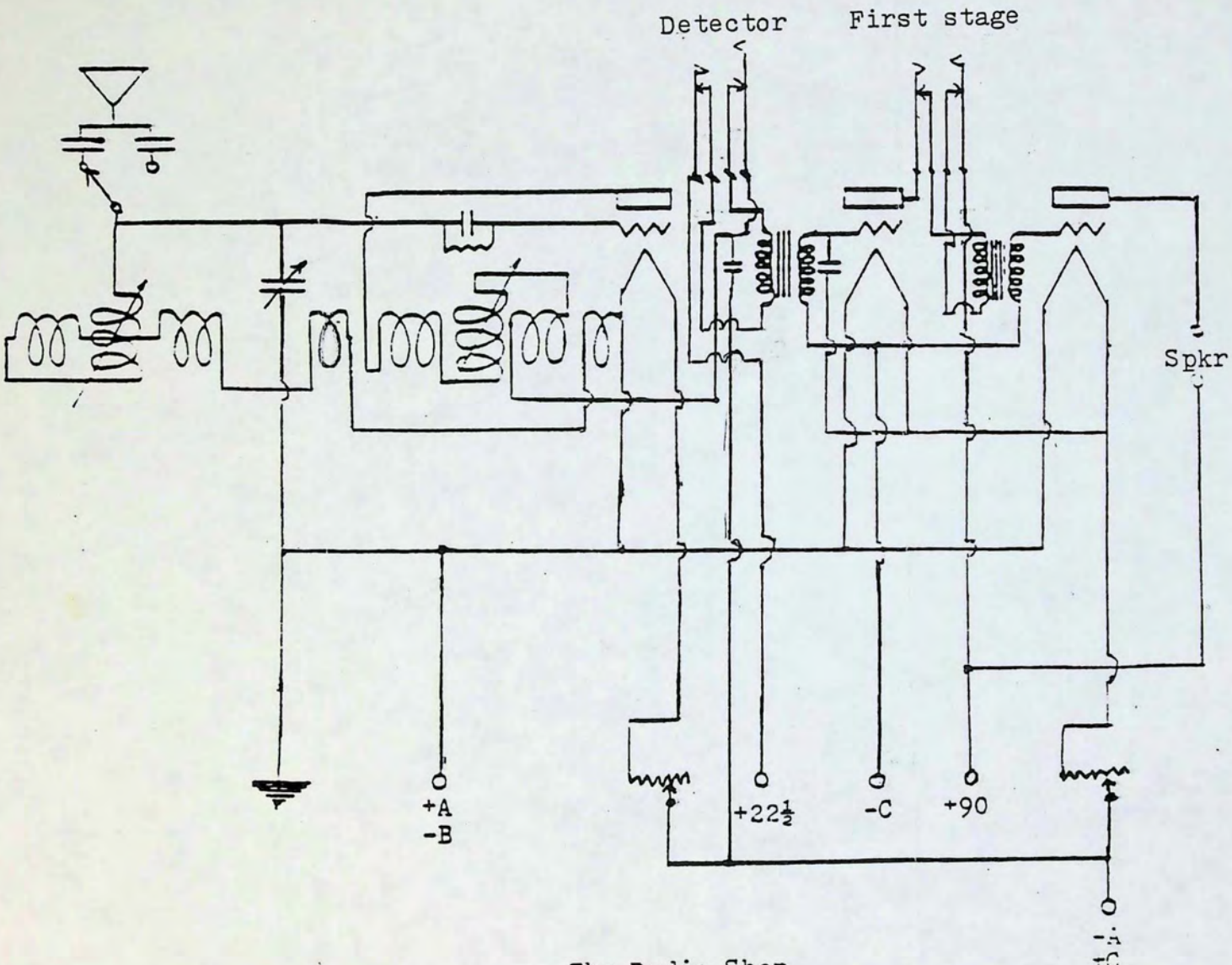
Forty-five minutes were required for a set to enter the assembly line & be delivered to the testing room. Freshman also produced grid leaks, grid condensers, basketweave coils, etc., many of which were utilized by other manufacturers: Pilot, for example, used the Freshman combined variable condenser & coil in their first kit offering in 1926. When asked for the secret of his success, Freshman replied:

"I surround myself w/ good men & pay them well. I would not have an associate who could not make money."

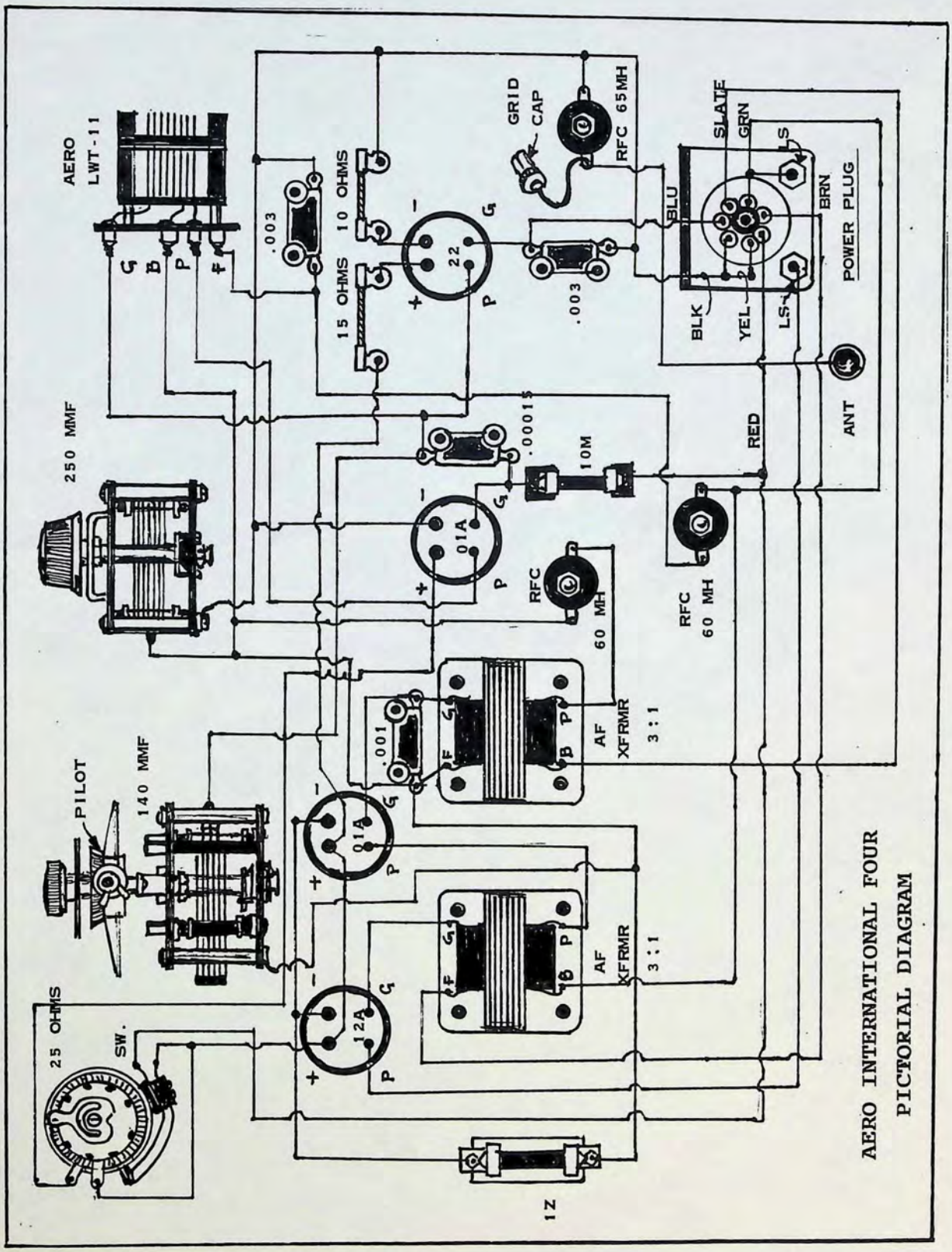
Sometimes never change....

CAS

ECHOPHONE MODEL A



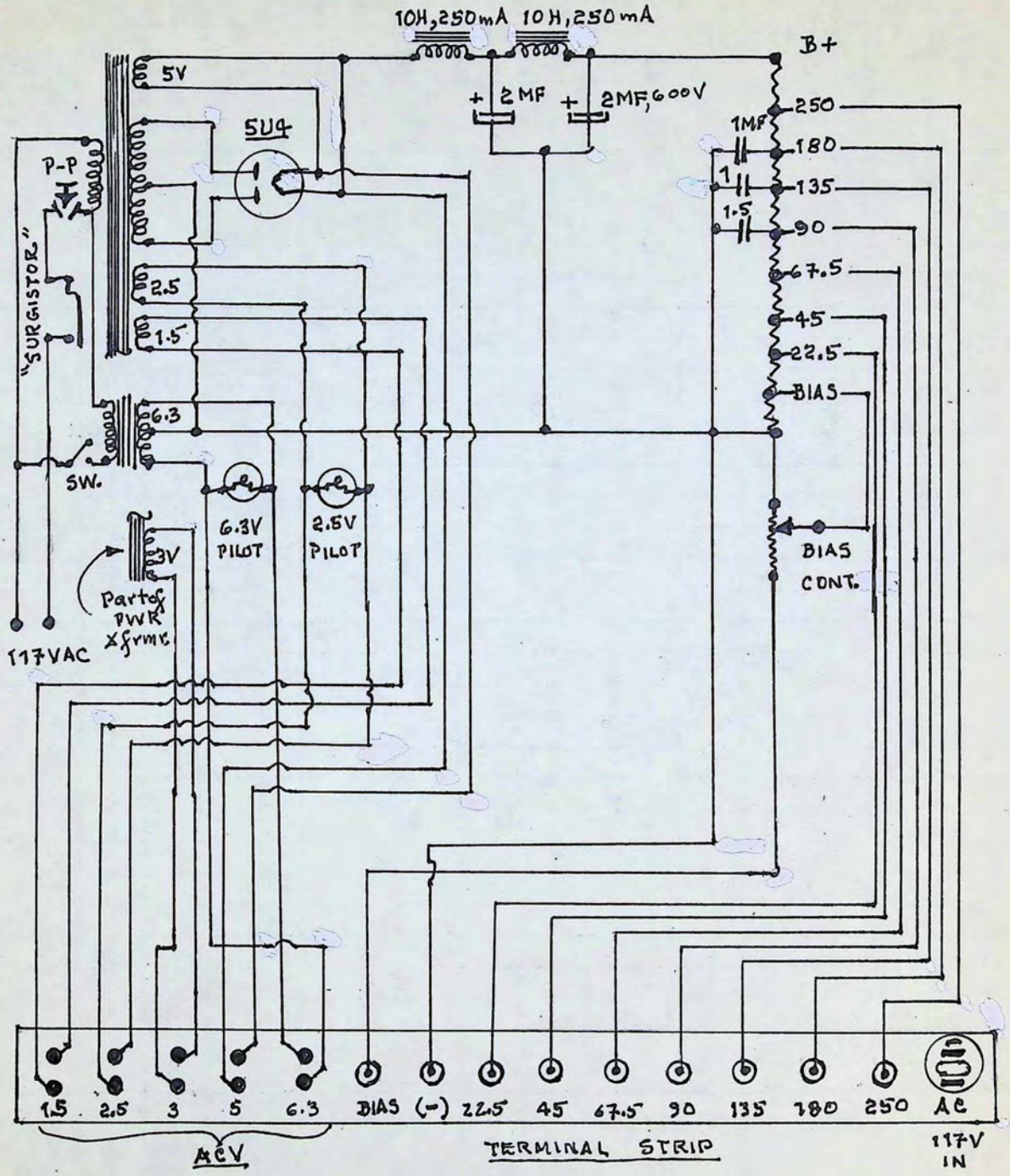
The Radio Shop
Sunnyvale, Calif.



AERO INTERNATIONAL FOUR

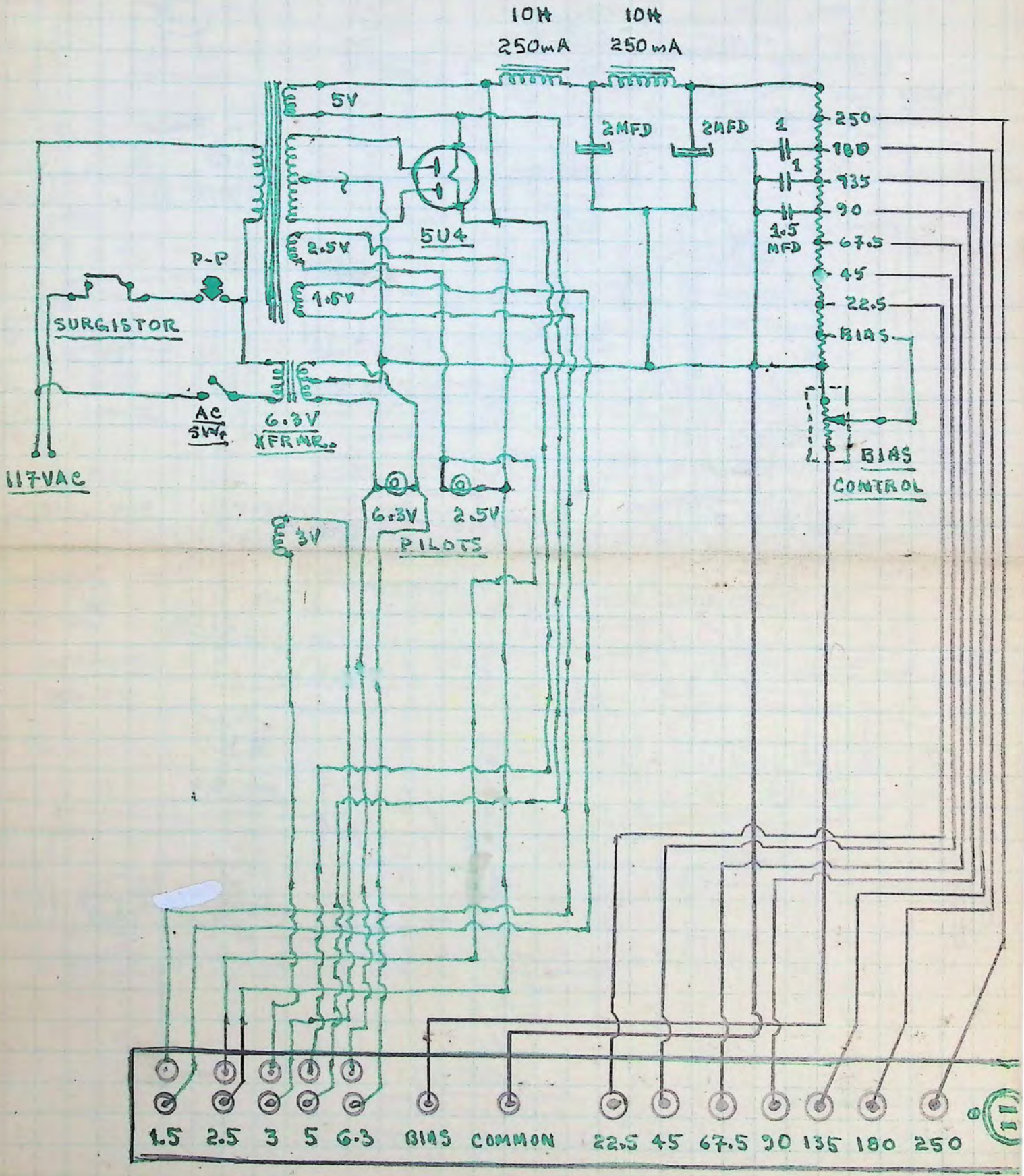
PICTORIAL DIAGRAM

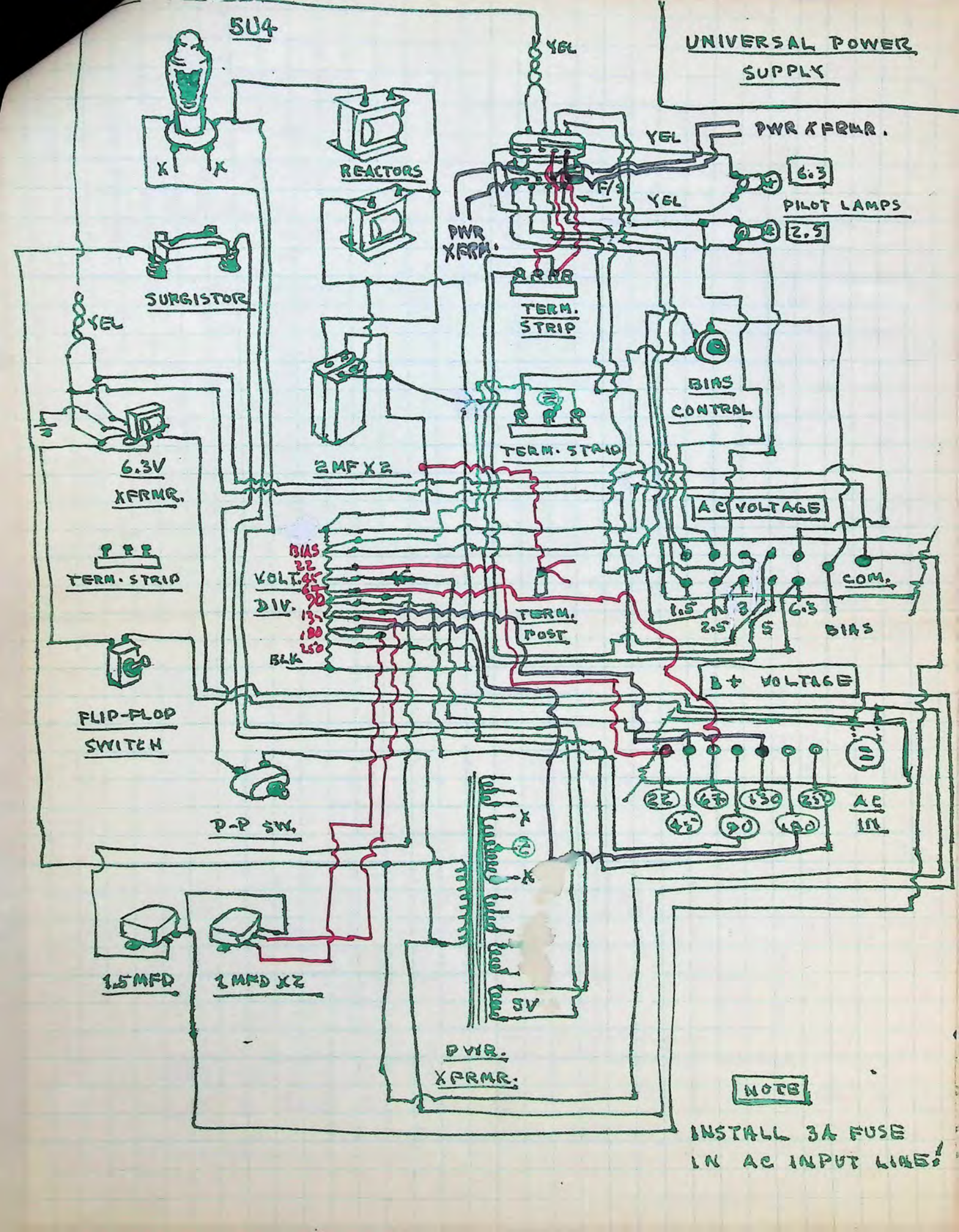
Universal Power Supply



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

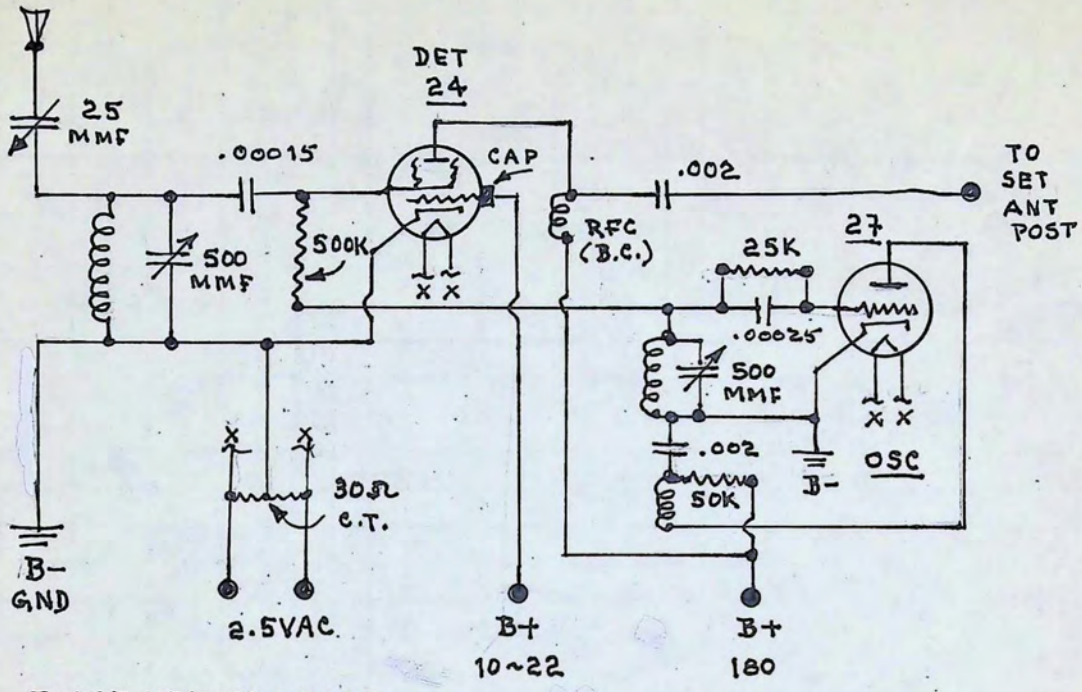
UNIVERSAL POWER SUPPLY:




5U4
UNIVERSAL POWER SUPPLY
YEL
PWR XFRMR.
6.3
PILOT LAMPS
2.5
REACTORS
SURGISTOR
TERM. STRIP
BIAS CONTROL
6.3V XFRMR.
2MF X2
AC VOLTAGE
BIAS
22
VOLT. 47
DIV. 90
130
180
250
BLK
COM.
1.5
3
2.5
5
6.3
BIAS
FLIP-FLOP SWITCH
B+ VOLTAGE
P-P SW.
AC IN
1.5MFD
1MFD X2
5V
PWR. XFRMR.
NOTE
INSTALL 3A FUSE IN AC INPUT LINE!

SWC 12/30

A-K "Super Short-Wave" Adapter - 1930

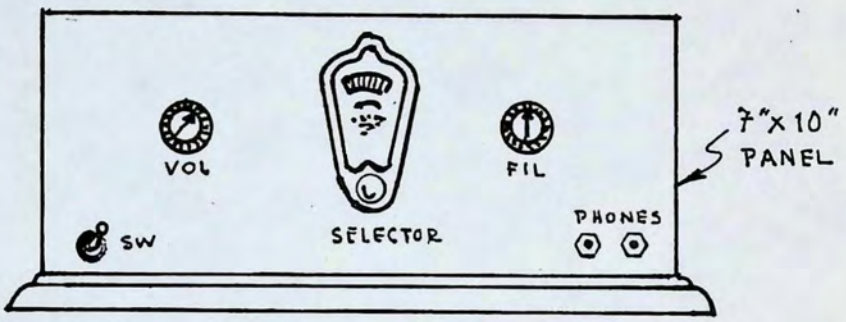


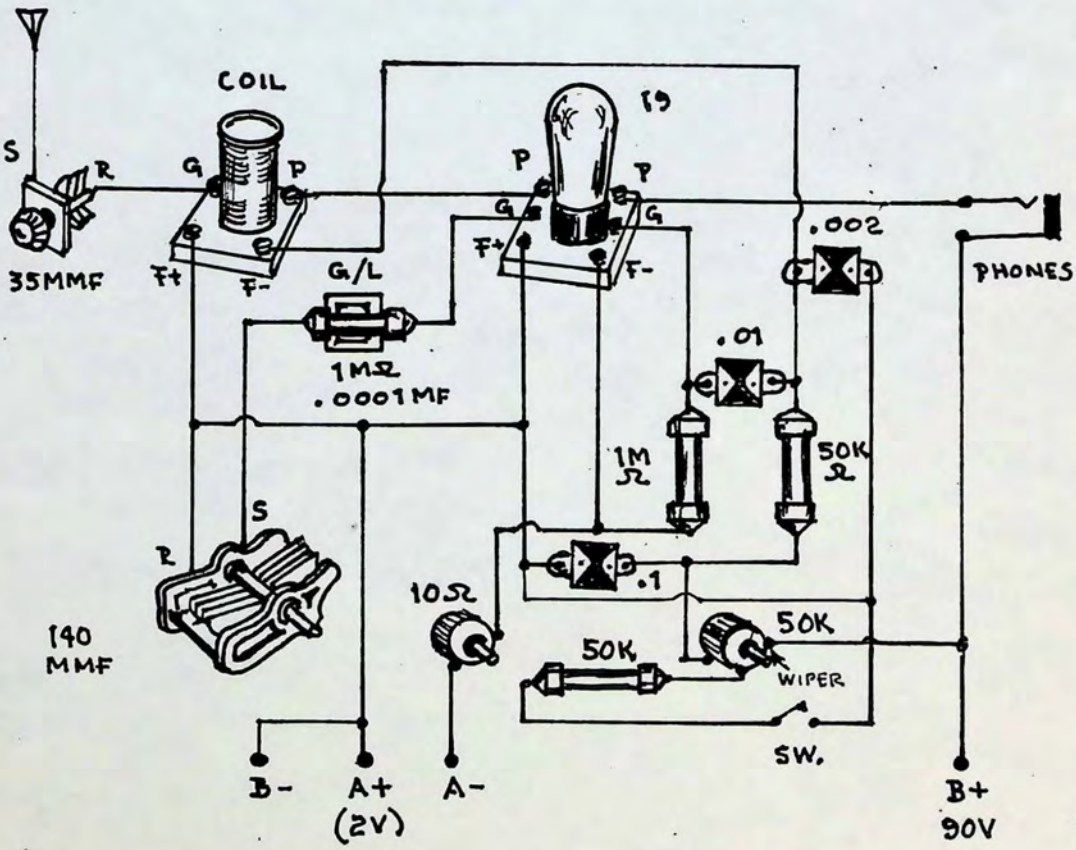
TWIST HEATER LEADS.

(SWC 12-30)

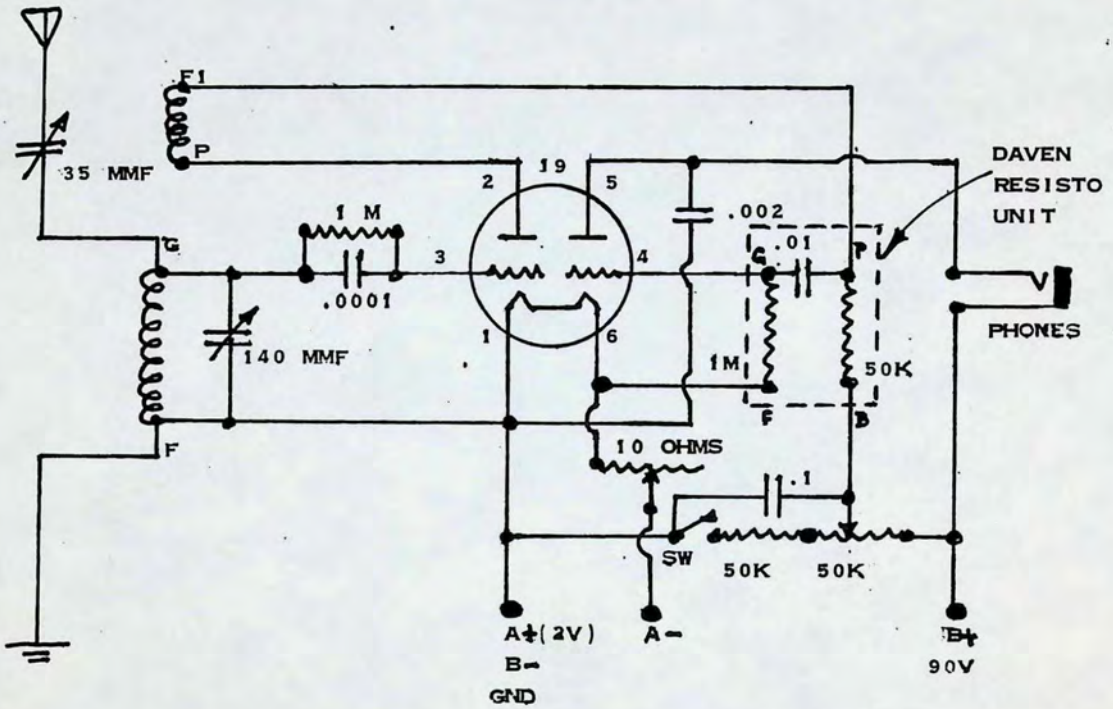
22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

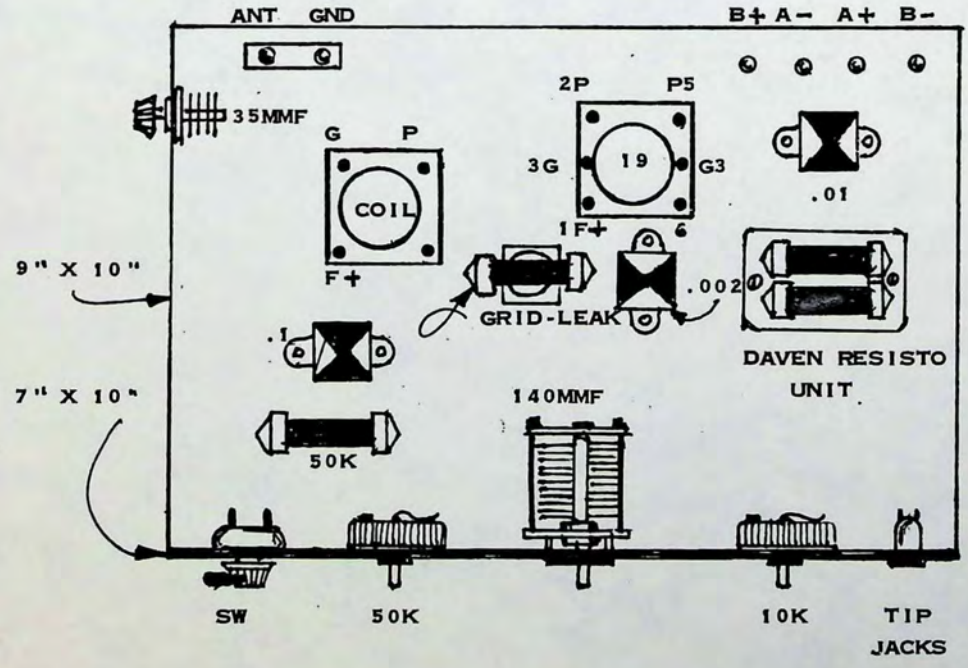
"AMPLIDON NO. 2" (TRY-MO/WALLACE), 1930: Sht. 2





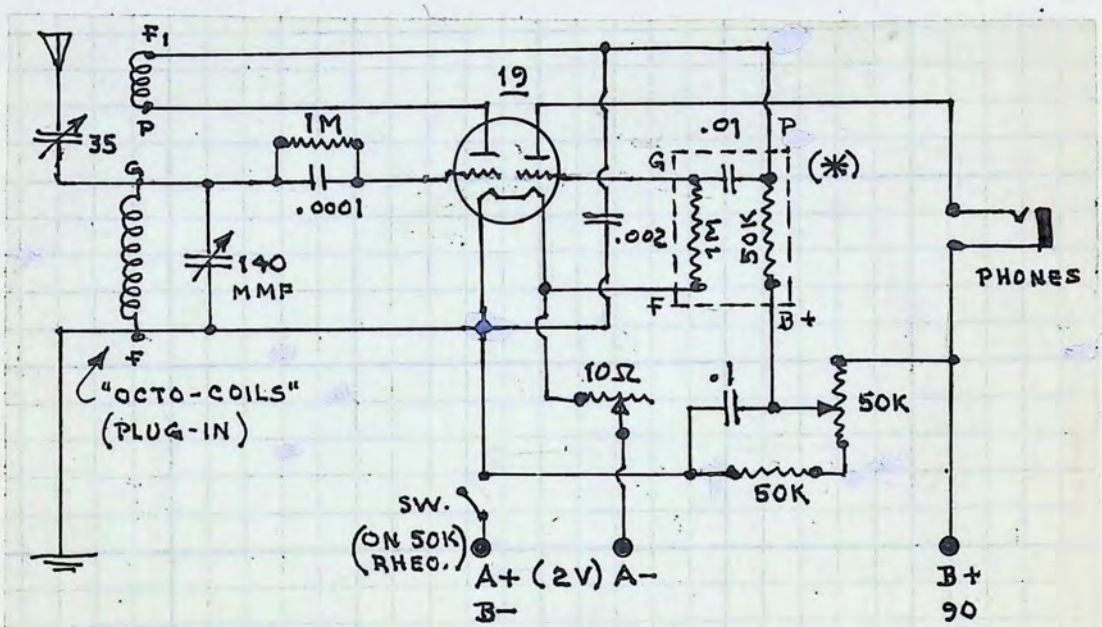
"AMPLIDON" NO. 2 - Sht. 3





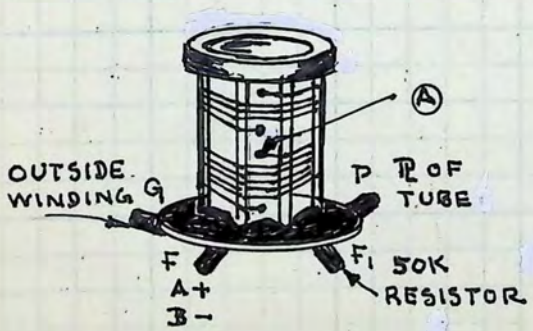
"DUO-AMPLIDYNE" SHORT-WAVE RECEIVER, 1933

NOTE: This circuit was a combination of the "Twinplex" and "Osciladyne". I have had great success with it, and easily recommend construction.



(*)= DAVEN "RESISTO" UNIT MAY BE USED, CHANGING .006 MF CONDENSER TO .01MF.

MAY DRIVE A PM SPEAKER UNDER SOME CONDITIONS.



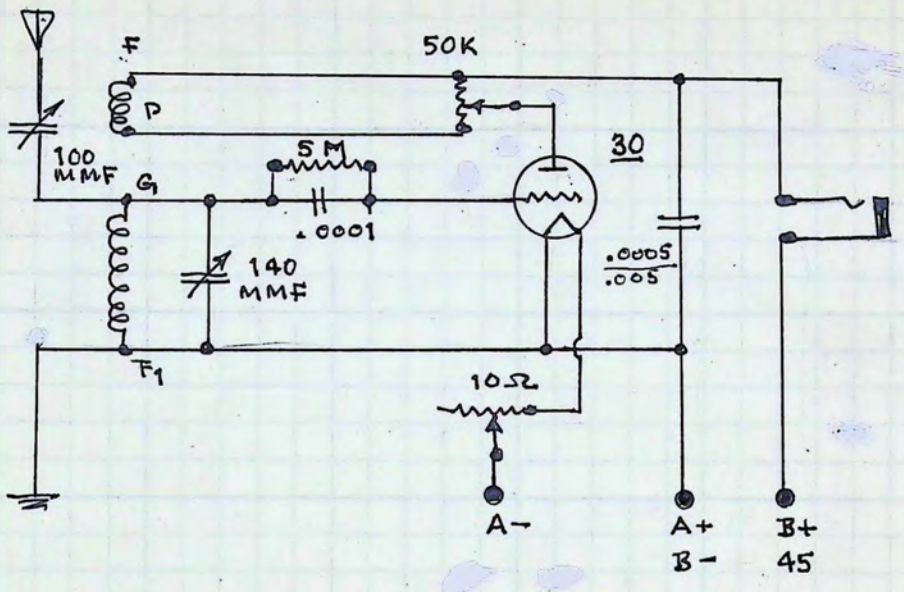
A = TO A+

OUTSIDE WINDING OF GRID COIL CONNECTED TO G/L.

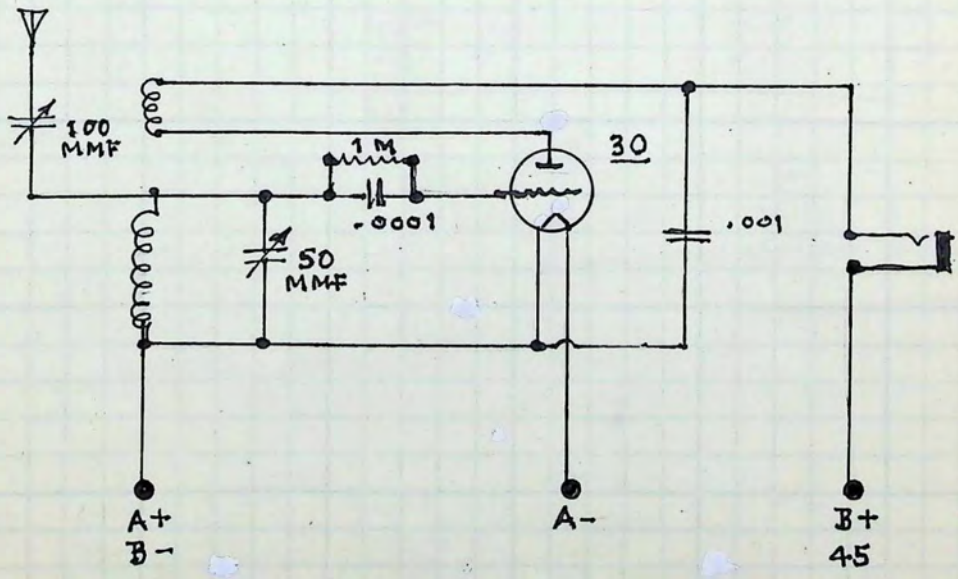
OUTSIDE WINDING OF TICKLER CONNECTED TO TOP OF TUBE.

END OF TICKLER GOES TO 50K RESISTOR IN R-C COUPLER.

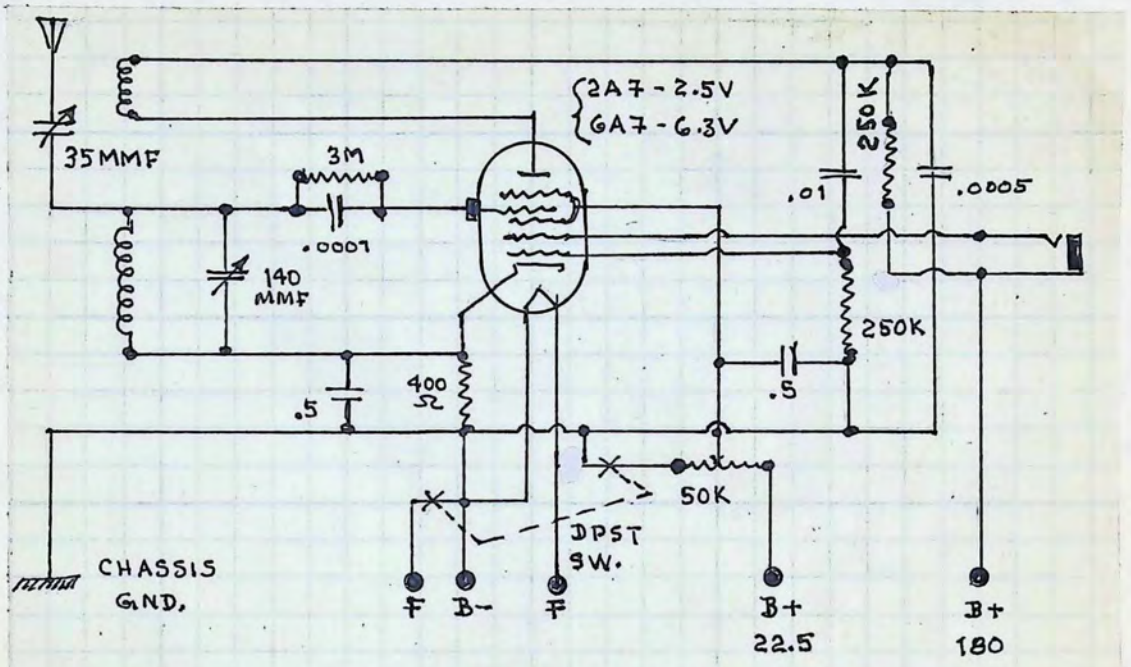
(SWC 6-34)



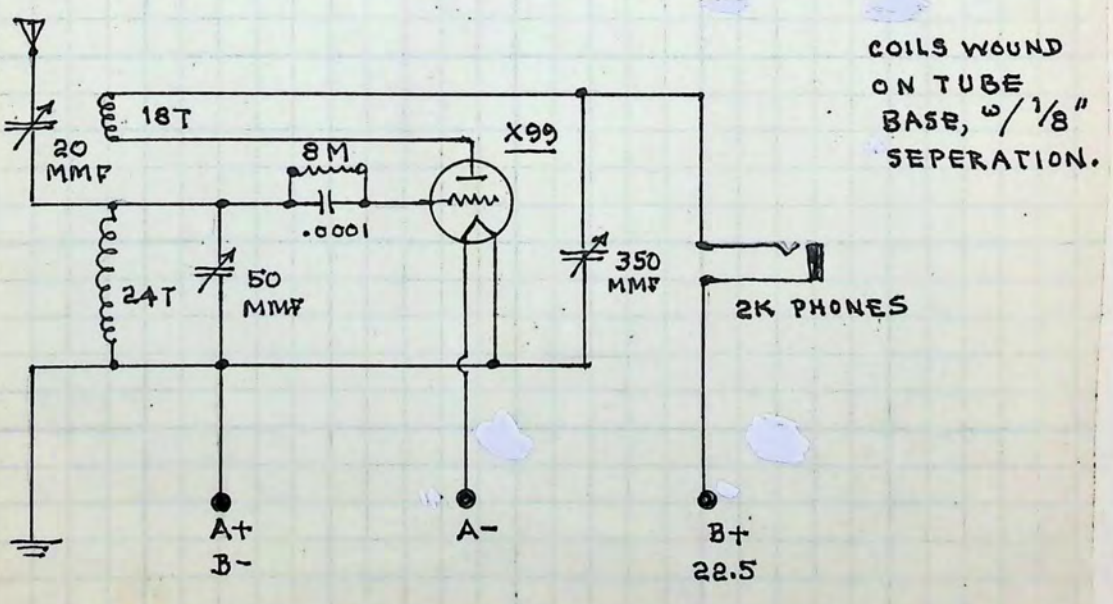
TRY-MO "SCOUT" SW. RECEIVER



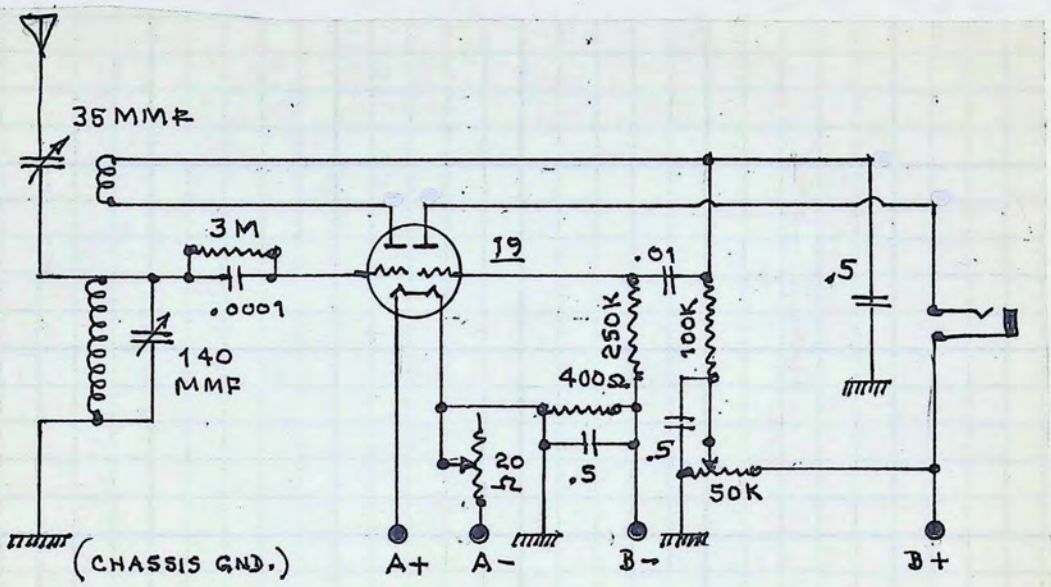
1-TUBE "POCKET" SW. RECEIVER



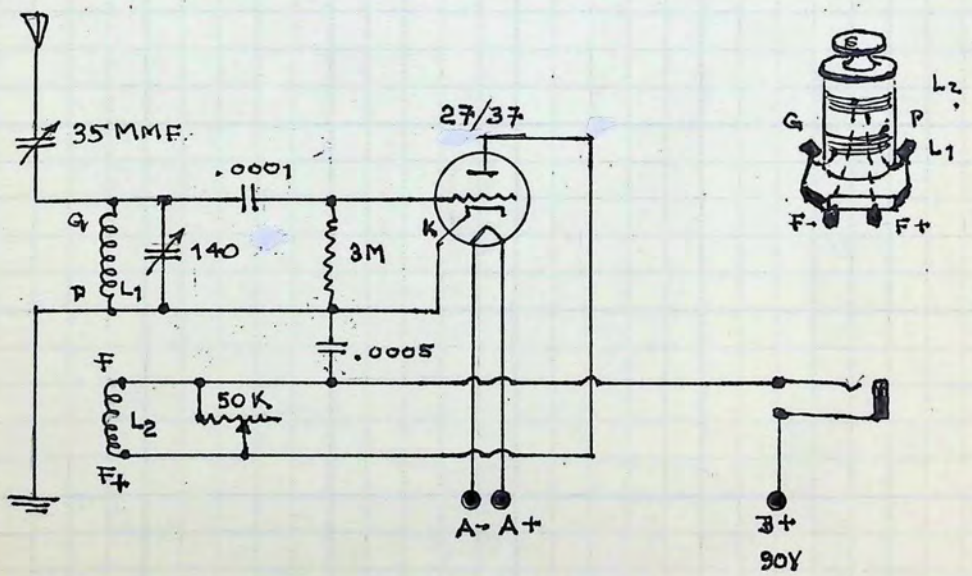
THE "PENTAFLEX" SW. RCVR.-THIS WAS POPULAR



AN X99 SHORT-WAVE RECEIVER.

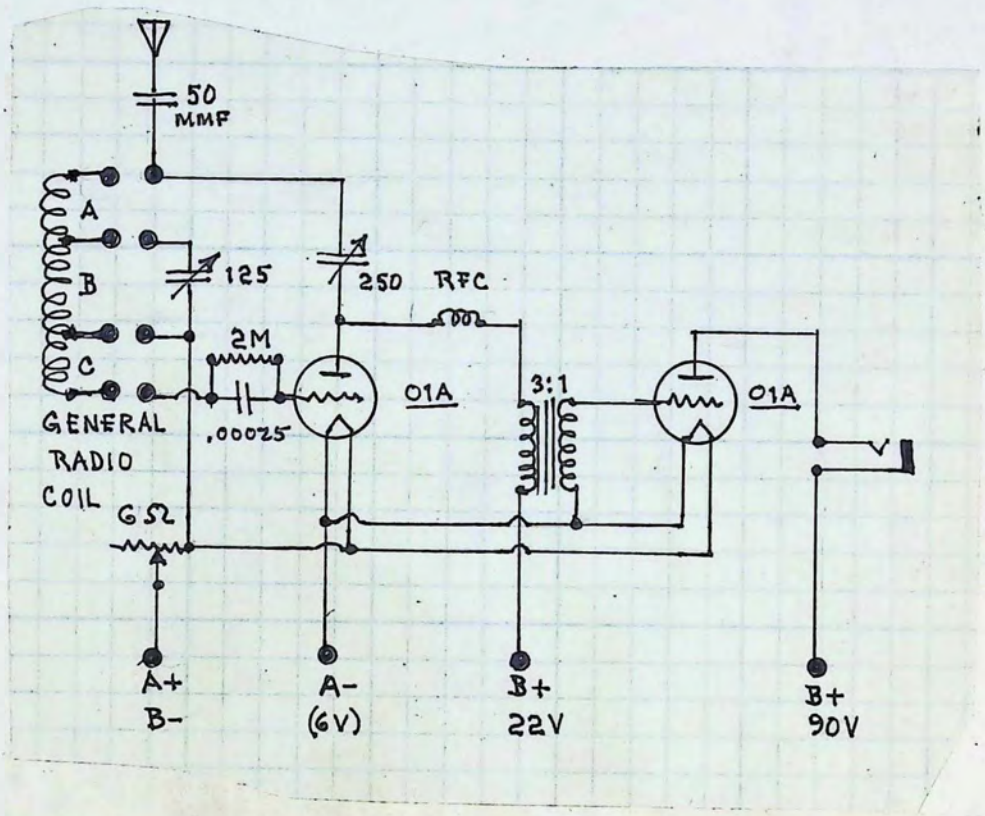


RADIO TRADING CO. "TWINPLEX" SW. RCVR.



WORCESTER "OSCILLODYNE"

MARCY SHORT-WAVE RECEIVER, 1925



If you do not have the GEN-RAD 275-D coils shown, you can wind your own as follows:

Coil Form = 2.75" Ø
Wire Gauge = #16 DSC.

COIL:	"A"	"B"	"C"
20 Meters	1 Turn	2 Turns	2 Turns
40 Meters	3 T.	3 T.	3 T.
80 Meters	6 T.	6 T.	6 T.
200 Meters	~	20 T.	15 T.

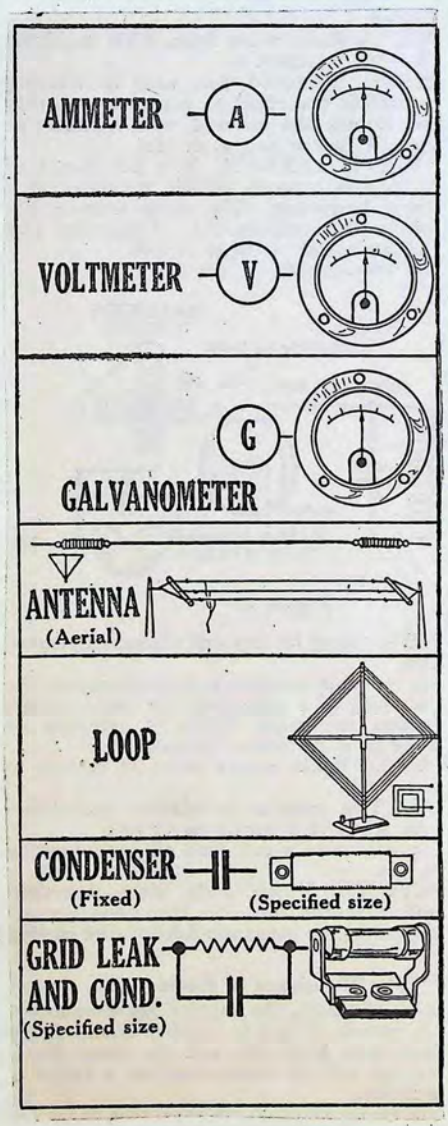
(EXP. 7-25)

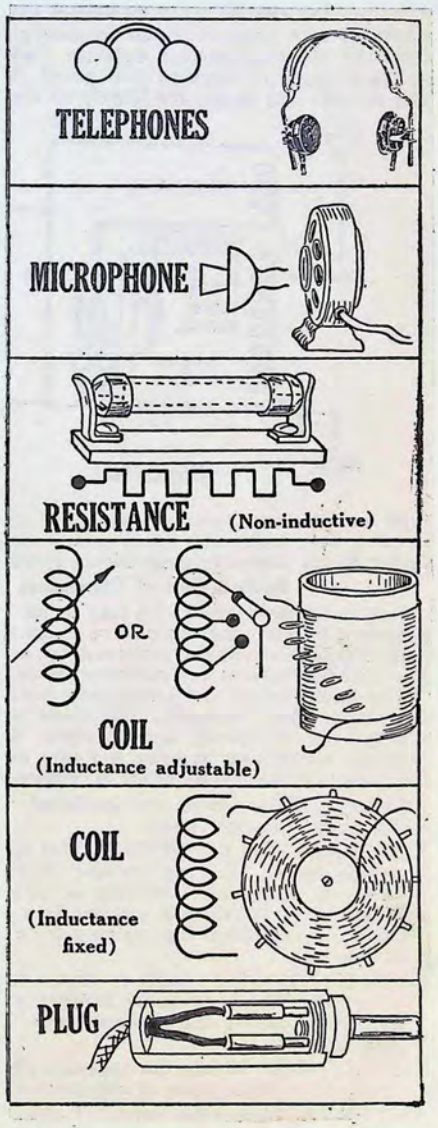
EARLY RADIO SYMBOLS

EARLY RADIO SYMBOLS

EARLY RADIO SYMBOLS

Electrical symbols for Radio were not standardised until the RME conference of 1929, and then not everything was covered. The following pages depict early symbols, some of which are still in use today; some have long since been forgotten. You may come by early schematics that puzzle you - these references may help.





ORIGINAL CONSTRUCTION PROJECTS

NAME: SCOTT SW. CONVERTER, 1929

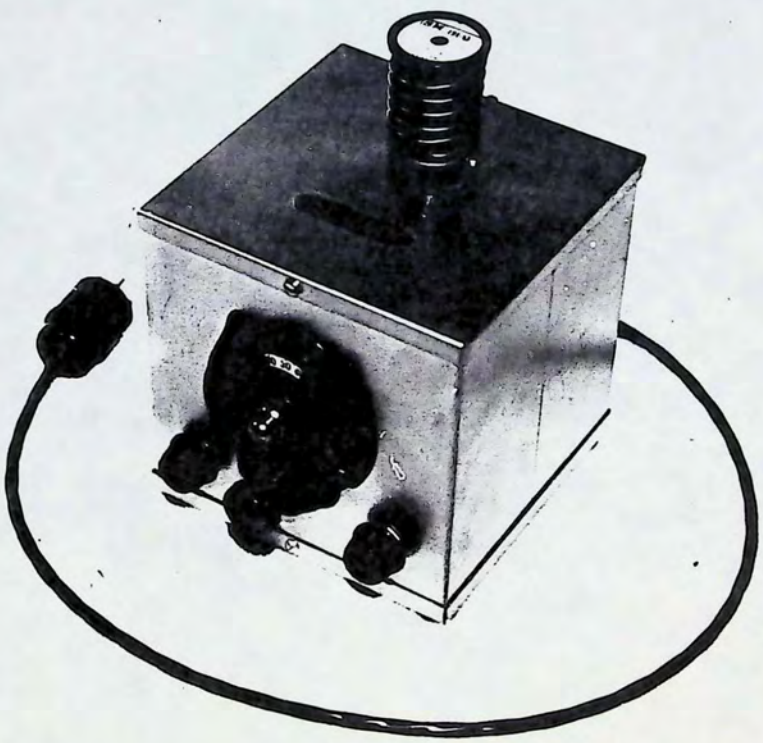
TYPE: Xtal.: _____ Reflex: _____ SW. Rcvr.: _____
Regen.: _____ T.R.F.: _____ AF Amp.: _____
Super-Regen.: _____ Super-Het.: _____ Pwr. Units: _____
Other: For Sets w/ 27 DET.

TUBE COMPLEMENT: 27

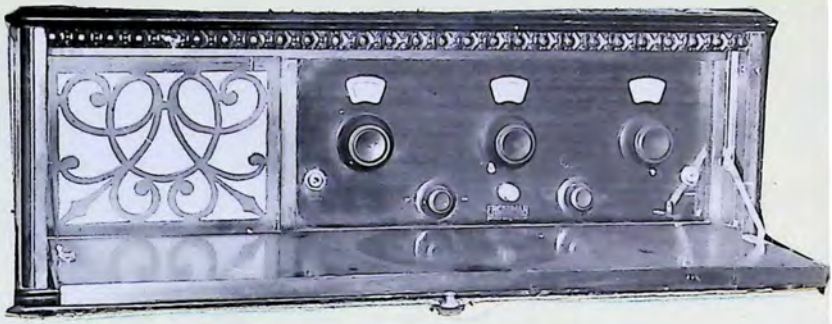
POWER REQUIREMENTS: From Receiver.

VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS REFERENCES:
Volume No. III Page 114 MONOGRAPH: ____
Schematic. ✓ Op. Instr.: ✓

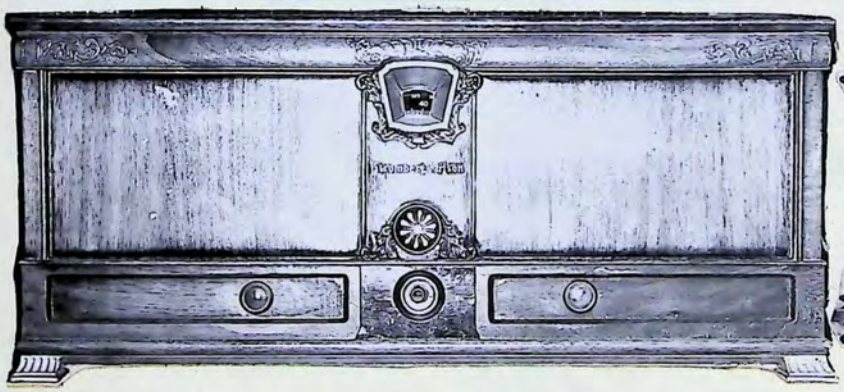
PANEL CONFIGURATION: Original: ____ By D.H.M.: ✓



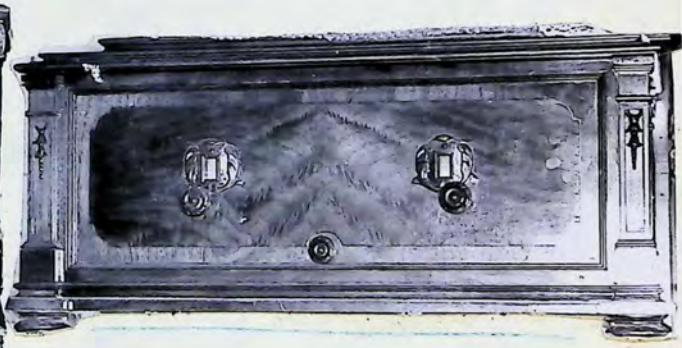
FEDERAL "Orthosonic"



FRESHMAN "Masterpiece"



STROMBERG-CARLSON 635-A



GILFILLAN

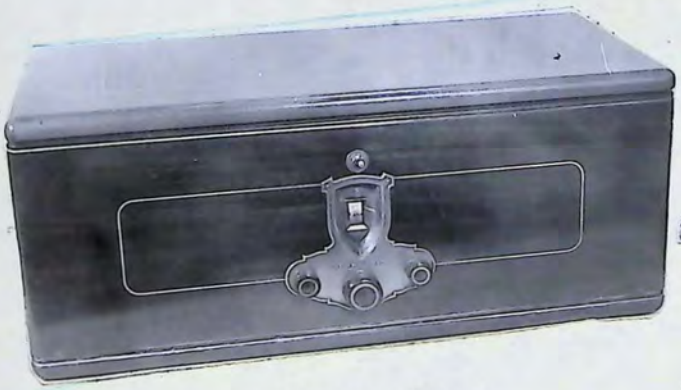
RADIOLA 60

KEMPER/GILFILLAN Neutrodyne

TABLE RADIOS

BOSCH Model 5-A

"ELECTRON" Model VIII



BOSCH Model 28

ERLA "Pathfinder" (Kit)

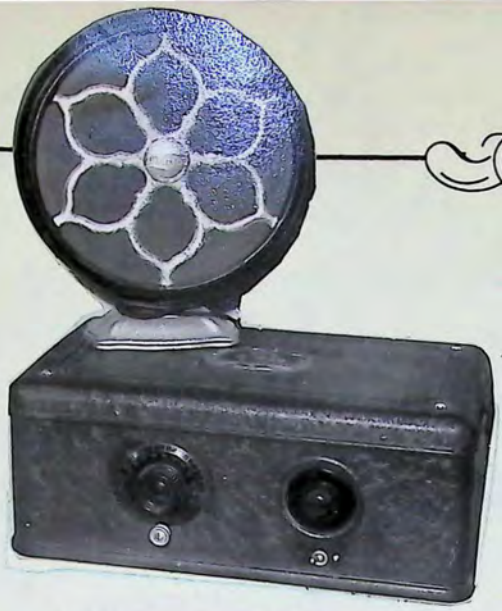
(Factory-Wired.)

B * S * T 5

BOSCH Model 66

OTRC

TABLE RADIOS



ATWATER-KENT Model 37

ALL-AMERICAN "Chieftain"

ALL-AMERICAN "Mohawk"

DAY-FAN 5-TUBE T.R.F.

RCA Model 26

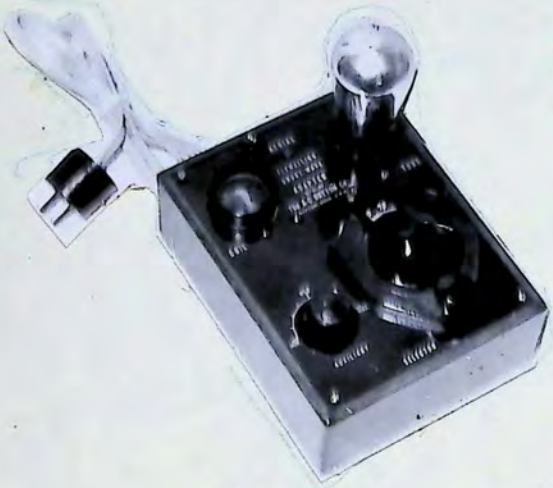
SHAMROCK 2-TUBE REFLEX (Kit)

SHORT-WAVE CONVERTERS

SILVER-MARSHALL

STROMBERG-CARLSON
Model 69

SARGENT



FLEWELLING

STEWART-WARNER 301-A

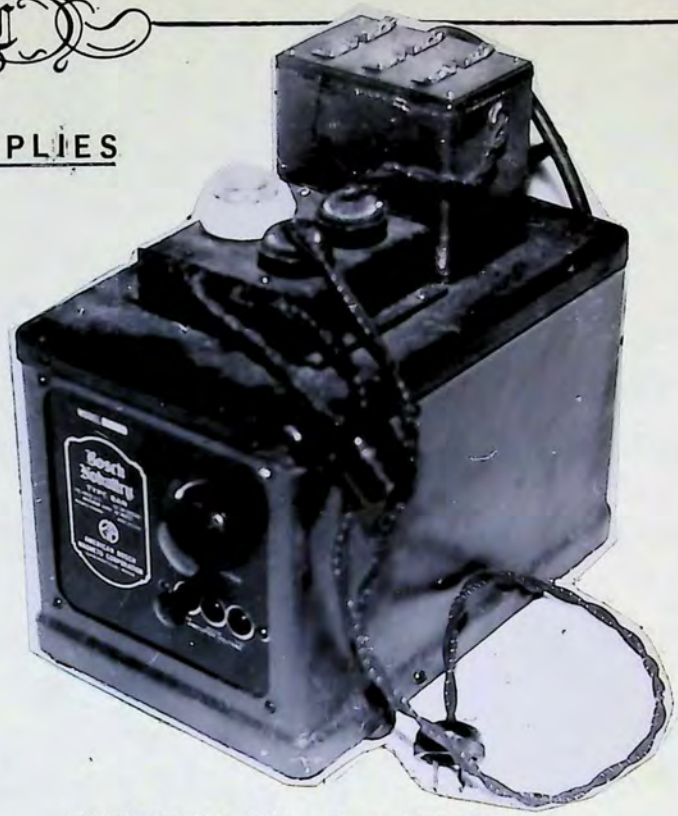
GONSET AUTO
(6 & 12 Volts)

PILOT "Super Wasp" #40672

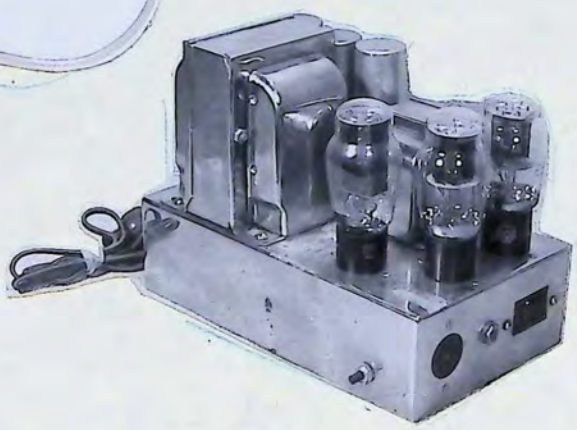
SCOTT - (Kit)

POWER SUPPLIES

GREBE AC FIL & PWR
SUPPLY



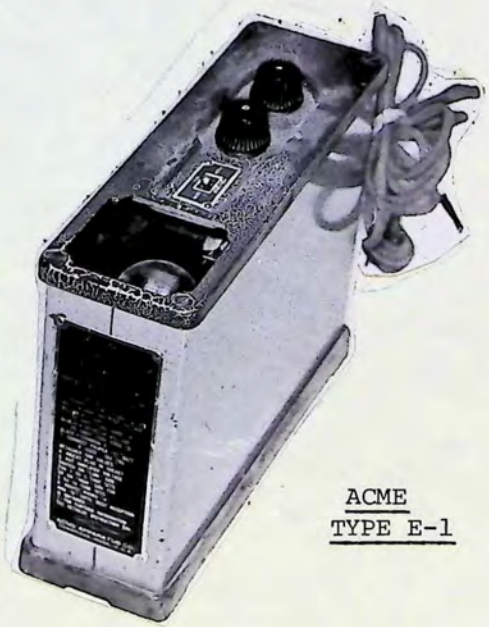
BOSCH Model 502, Type BAN SUPPLY



SCOTT "All-Wave" 15
Power Amplifier

MAJESTIC STD. "B"

H.H.SCOTT
PWR. AMP.



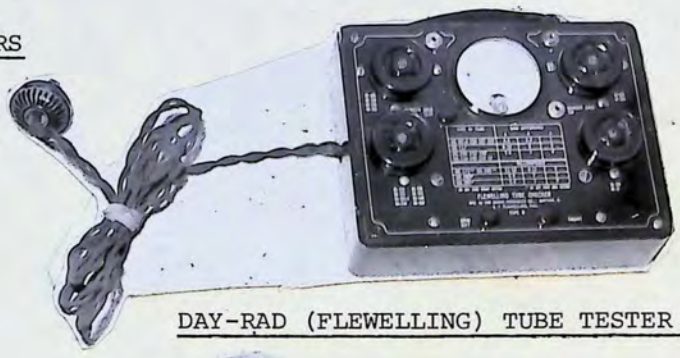
ACME
TYPE E-1

TEST EQUIPMENT

STERLING TUBE TESTERS & REJUVENATORS

SUPREME SIGNAL GENERATOR 571

BURTON-ROGERS
OSCILLATOR
Type 180



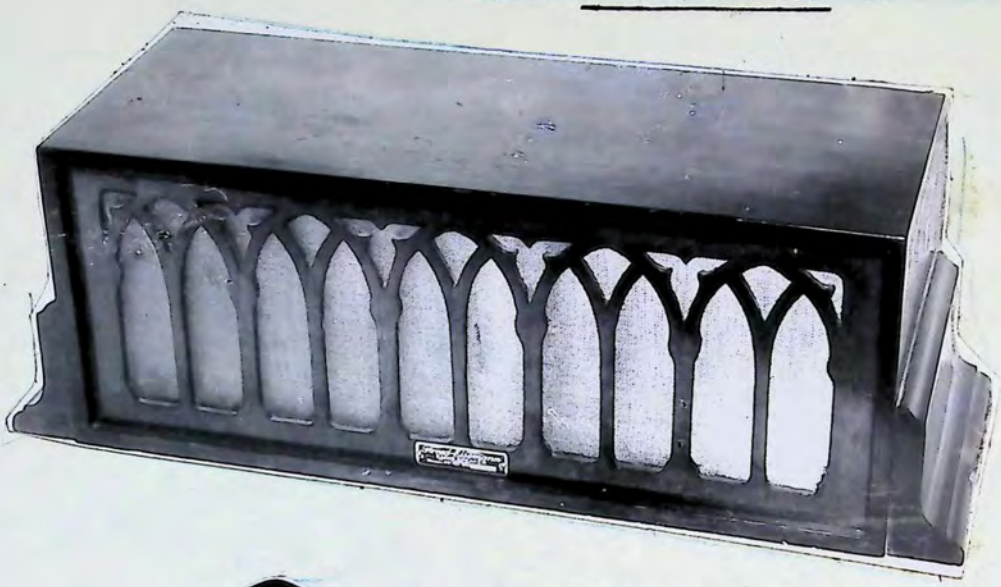
DAY-RAD (FLEWELLING) TUBE TESTER "B"

SUPREME TUBE TESTER #17

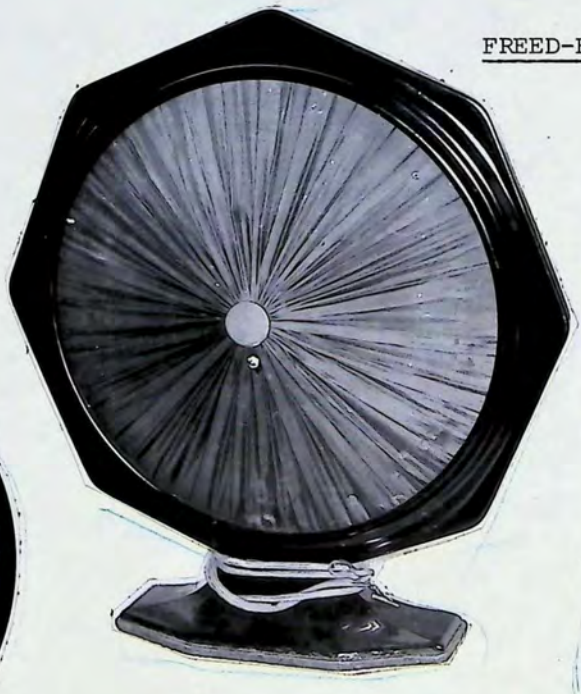
JEFFERSON
TUBE
REJUVENATOR

SPEAKERS

"ROLA



FREED-EISEMANN FE-50: 1923



"SONOCORDE"

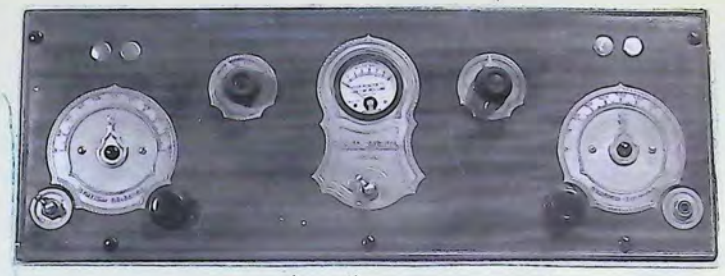
MAGNAVOX "Beverly" No. 2

RCA Model 100

ACME K-1

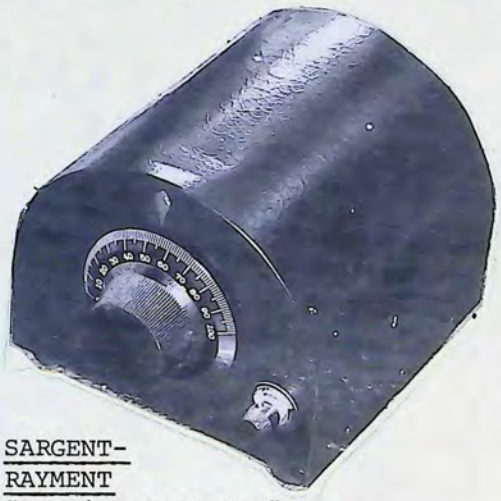
HARDWARE & ACCESSORIES

DAVEN R-C AUDIO AMPLIFIERS



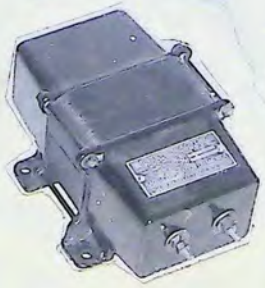
STROMBERG-CARLSON 601-A PANEL

SILVER-MARSHALL 112 KC AMPLIFIER



SARGENT-RAYMENT "Station Isolator"

TUNGAR 2A BATT. CHARGER



G.E. FILTER REACTOR (1922)

WESTINGHOUSE TRICKLE CHARGER

HI-FI/FM CHASSIS & UNITS

DICTOGRAPH CONTROL UNIT

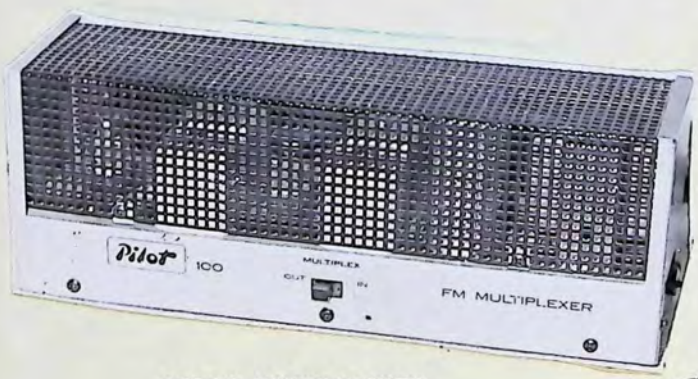
H.H.SCOTT "Dynaural" Model 121
EQUALIZER & PREAMPLIFIER

PILOT FM TUNER

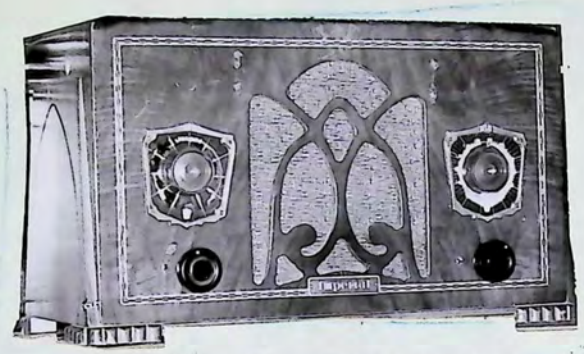
SARGENT-RAYMENT Model 1030
FM TUNER

PILOT FM TUNER Mark II

H.H.SCOTT AM/FM TUNER
Model 501



PILOT MULTIPLEXER



BELMONT "Imperial" 2-BAND

RADIOLA 20

SILVER-MARSHALL
"Shielded Six"

FREED-EISEMANN NR-7
(1st & 2nd Versions)

RADIOLA 33

BROWNING-DRAKE 4-TUBE "Custom"

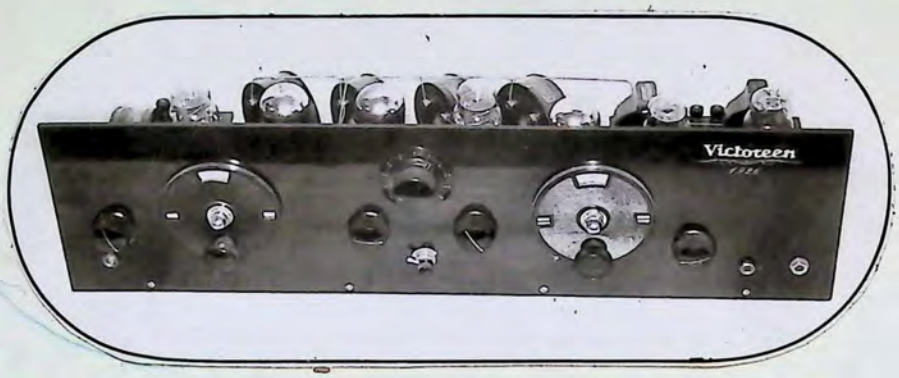
Top: RCA SUPER-HET

Bot: AMRAD "Super-Six"

STEWART-WARNER
2-Band AC

RCA BP-10 POCKET PORTABLE

SARGENT-RAYMENT SEVEN

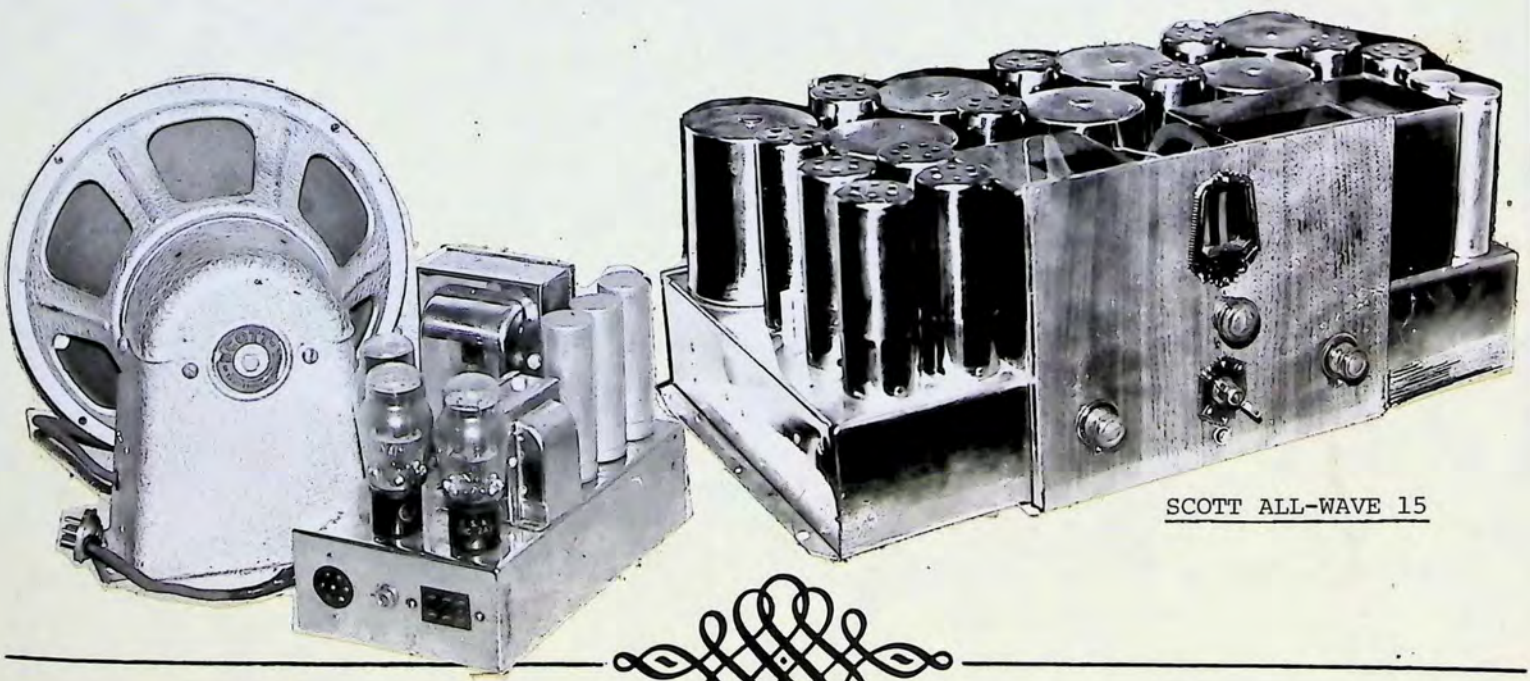


VICTOREEN "Standard" Super-Het

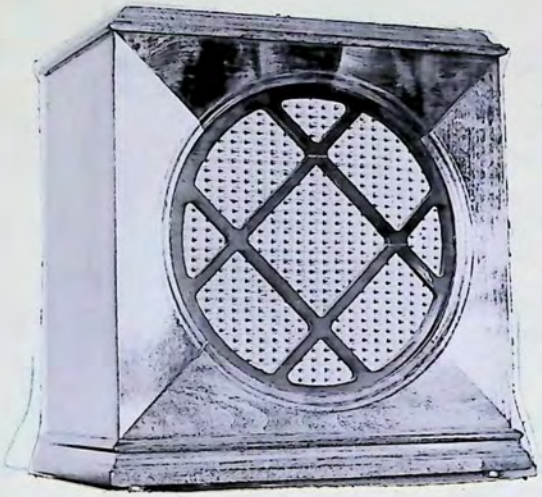
ECHOPHONE 3
Panel Assy.

ERLA "Monodic" TRF (HFL)

SARGENT DX-RANGER
(SW Receiver)



SCOTT ALL-WAVE 15



"EVEREADY" - 1925
(Blonde Mahogany)

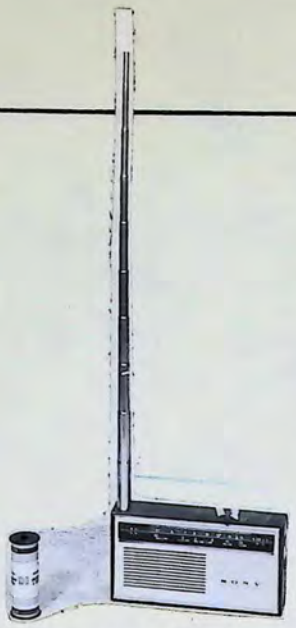
STEWART-WARNER "Midget"

A-K EK-16
(Shell)

RCA 100-A

A-K E-3

FOREIGN JOBBIES



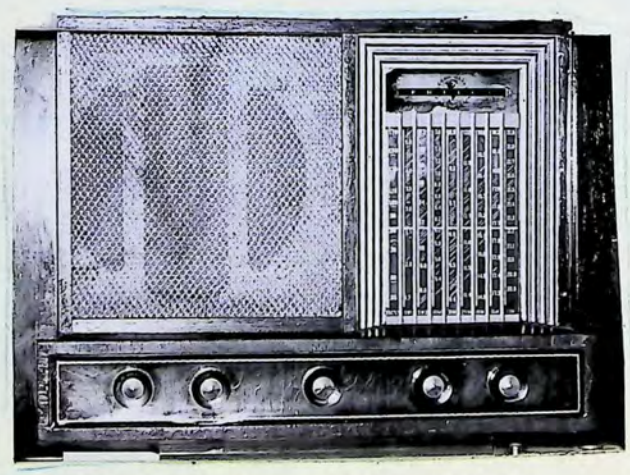
SONY V.P.
SW Rcvr.
(Japan)
(Film Roll
to Show Scale)

NATIONAL GT-250 2-BAND
(Japan)

NORMANDIE "Transista"
3-Band Portable
(Germany)

PHILLIPS B4C-87A (Holland)

TELEFUNKEN "Meky II"
3-Band AC; Italian Mrkt.
(Germany)

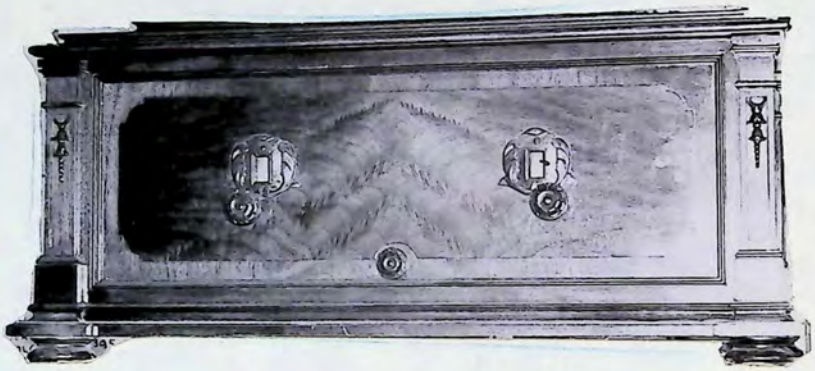


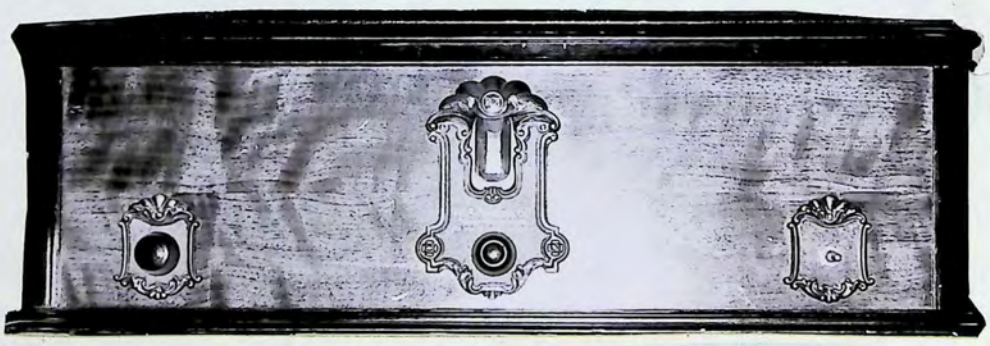
PHILCO ALL-WAVE EXPORT Model II

LONGINES "Symphonette" (Japan)

BREMER-TULLY Model 8-20

GILFILLAN NEUTRODYNE





RADIOL 60 & 80
(Cabinets Similar)

BOSCH "Amborola" 16-A
(Chassis Only)

KINGSTON
TRICKLE-CHARGER

DUAL 6V SUPPLY
110/240 VAC IN
(French)

BEEDE METER ASSY.

SUPREME SIGNAL-GENERATOR

RADIO CITY MULTI-METERS

ZENTIH "Royal"

"TOMMY TUCKER" AC/DC

WESTINGHOUSE

"CORONADO" Model 7156

ZENITH Model 6C40

DELCO R-1238

Original Construction Projects

NAME: "ULTRADYNE L-1"

TYPE: AF AMPLIFIER. YEAR: 1924

TUBES: 12A; 71A POWER: BATT.

"SKETCH-BOOK" REF.: Seperate MONOGRAPH.

NOTES: Robt. E. Lacault Design.

FORGOTTEN RADIOS GALLERY

"AUDIOLA"

MAKE & MODEL: "REX-O-DYNE" / "THOROLA", 1926 (Reichmann)

CONFIGURATION: Table ___ Console ✓ Portable ___

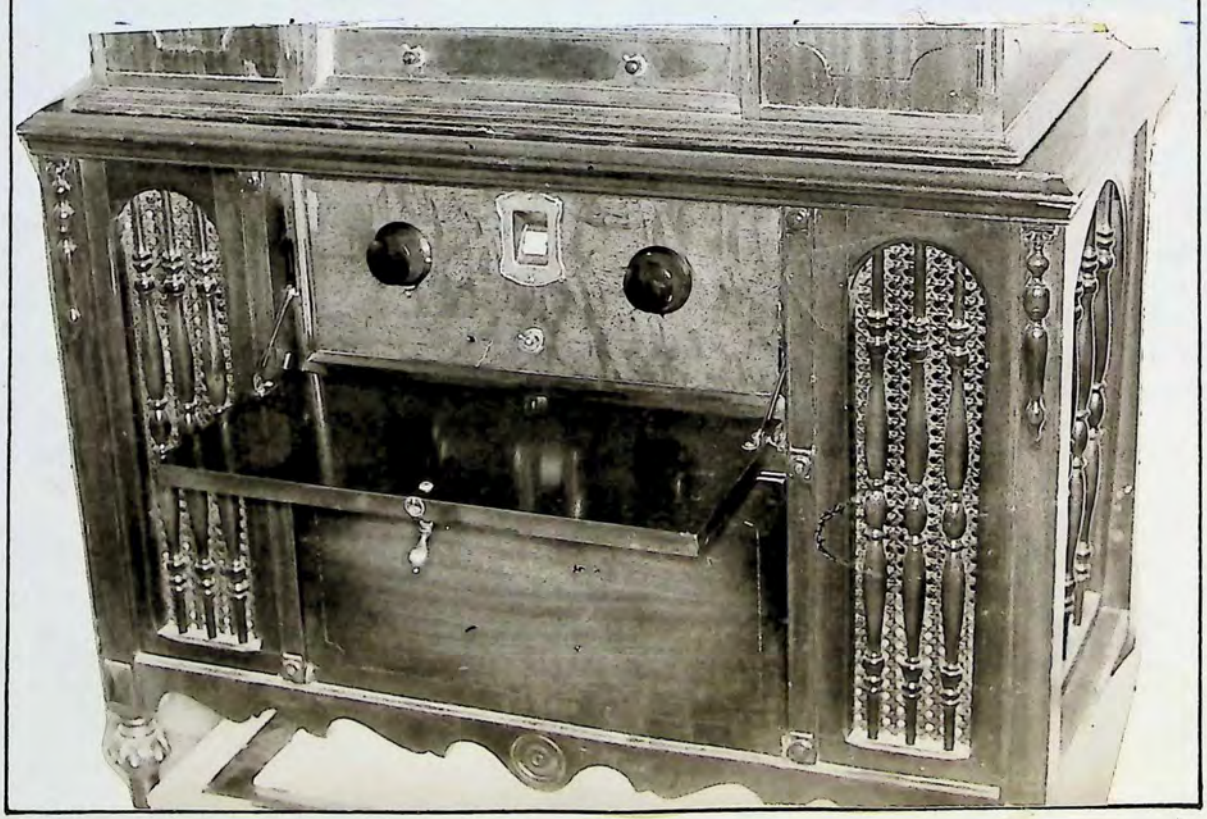
TYPE: T.R.F. ✓ Super-Het ___ SW. Rcvr. ___
Pre-Amp ___ Converter ___ Multi-Wave ___

POWER CLASSIFICATION: Battery ✓ Dry-Cell ___ AC ___

TUBE COMPLEMENT: (6) 01A (or) (6)01A; (2) ?1A

O/A DIMENSIONS: 39"x17"x38" WEIGHT: (T.B.D.)

REFERENCE: *VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS:*
Volume No. (N/A) Page No. ~



FORGOTTEN RADIOS GALLERY

MAKE & MODEL: ATWATER-KENT Model 37; 1927

CONFIGURATION: Table ✓ Console ___ Portable ___

TYPE: T.R.F. ___ Super-Het ___ SW. Rcvr. ___
Pre-Amp ___ Converter ___ Multi-Wave ___

POWER CLASSIFICATION: Battery ___ Dry-Cell ___ AC ✓

TUBE COMPLEMENT: ___

O/A DIMENSIONS: ___ WEIGHT: ___

REFERENCE: *VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS:*
Volume No. (N/A) Page No. ~

A-K
E-3

HARDWARE & ACCESSORIES

NOMENCLATURE: PILOT FM TUNERS; LATE YEARS

FUNCTION: Tuning FM Bands & Feeding Signal Into An AF Amplifier, Then To A Speaker.

EARLY MODEL

MULTIPLEXER

LATE MODEL

ORIGINAL CONSTRUCTION PROJECTS

NAME: LYNCH "AUDIO DECK"; 1926.

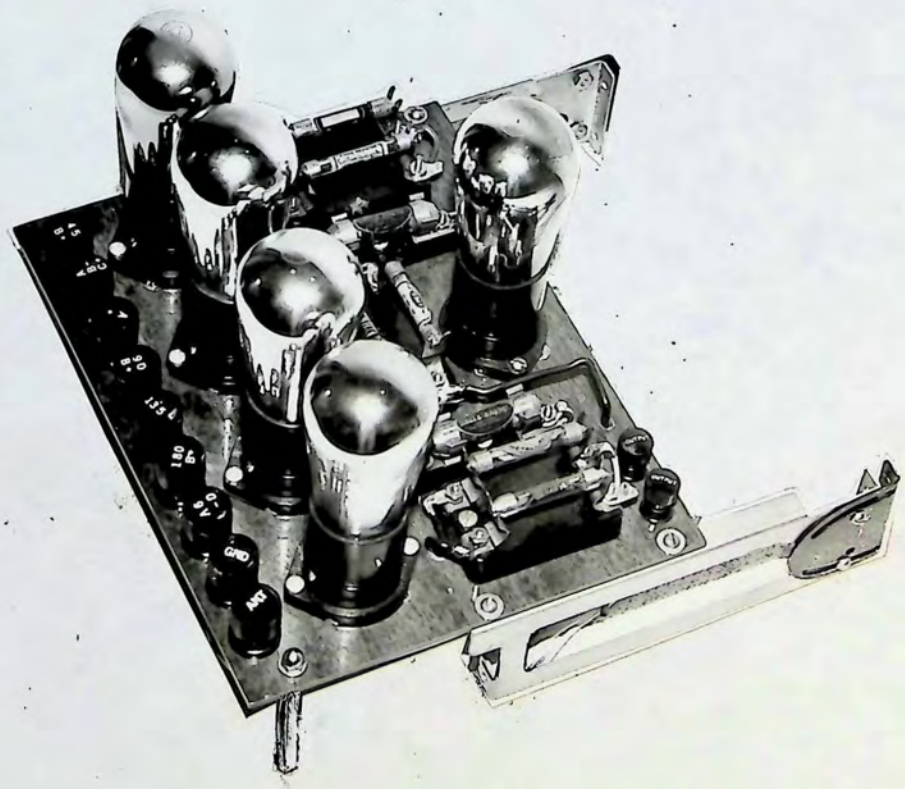
TYPE: Xtal.:____ Reflex:____ SW. Rcvr.:____
Regen.:____ T.R.F.: ✓ AF Amp.: ✓
Super-Regen.:____ Super-Het.:____ Pwr. Units:____
Other:____

TUBE COMPLEMENT: (4) 01A; 71A.

POWER REQUIREMENTS: 6VDC, 45V, 90V, 135V, 180V, C-9V

VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS REFERENCES:
Volume No. II-B Page 1 MONOGRAPH:____
Schematic. ✓ Op. Instr.:____

PANEL CONFIGURATION: Original:____ By D.H.M.: ✓



FORGOTTEN RADIOS GALLERY

MAKE & MODEL: SARGENT "DX RANGER" KIT, '29

CONFIGURATION: Table ✓ Console ___ Portable ___

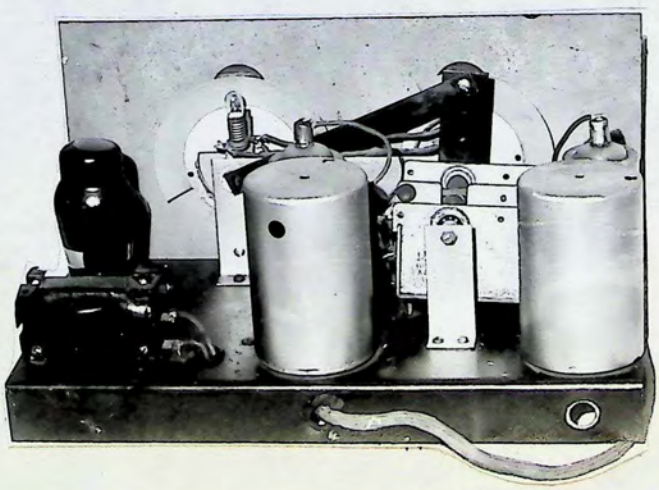
TYPE: T.R.F. ___ Super-Het ___ SW. Rcvr. ✓
Pre-Amp ___ Converter ___ Multi-Wave ___

POWER CLASSIFICATION: Battery ✓ Dry-Cell ___ AC ___

TUBE COMPLEMENT: 57, 58, 2A7

O/A DIMENSIONS: 14" x 7" x 6½" WEIGHT: 6#

REFERENCE: *VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS:*
Volume No. III Page No. 117



FORGOTTEN RADIOS GALLERY

MAKE & MODEL: KEMPER/GILFILLAN BROS. NEUTRODYNE

CONFIGURATION: Table ✓ Console ___ Portable ___

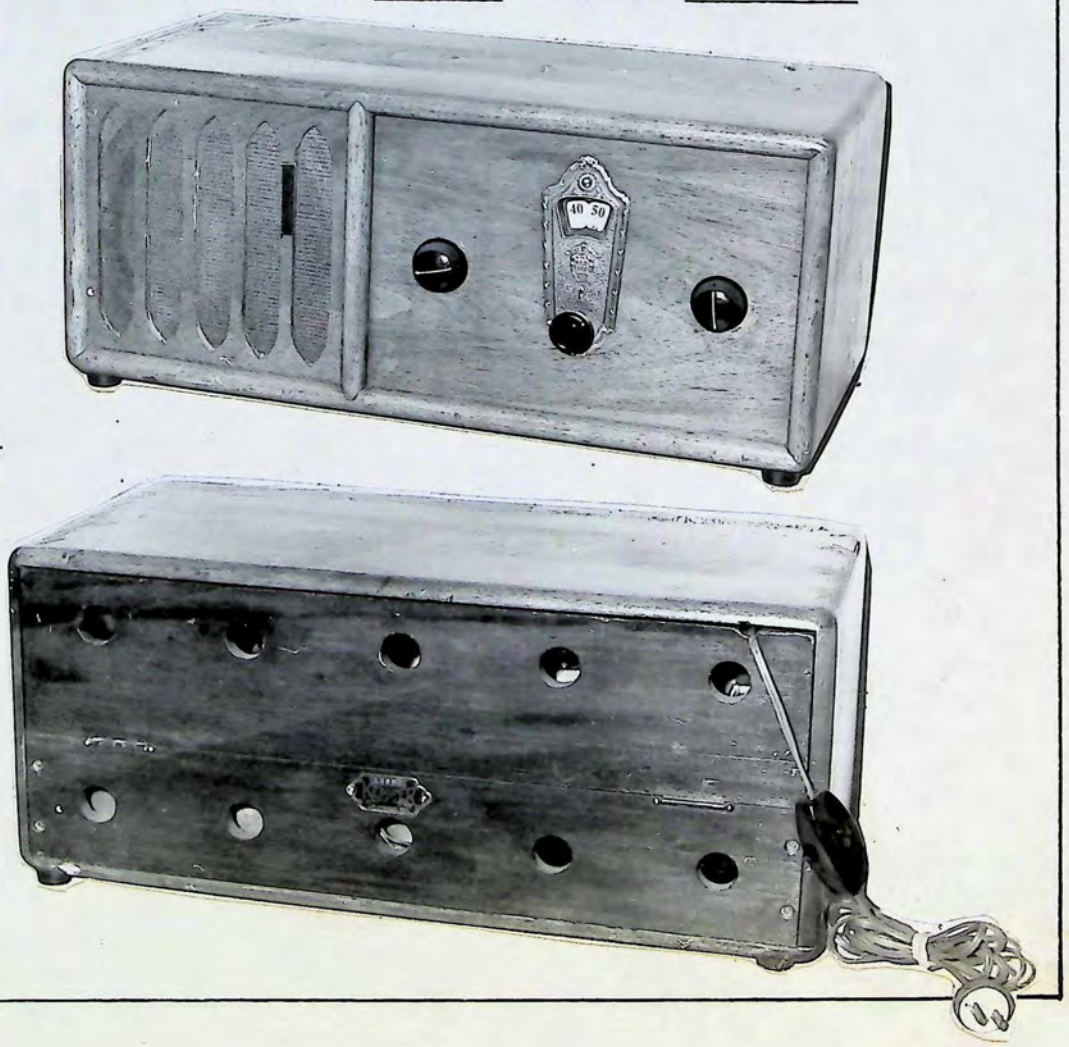
TYPE: T.R.F. ___ Super-Het ✓ SW. Rcvr. ___
Pre-Amp ___ Converter ___ Multi-Wave ___

POWER CLASSIFICATION: Battery ___ Dry-Cell ___ AC ✓

TUBE COMPLEMENT: (2) 26, 27, 71A, 80

O/A DIMENSIONS: 22"x 10½"x 9½" WEIGHT: 30#

REFERENCE: *VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS:*
Volume No. (N/A) Page No. ___



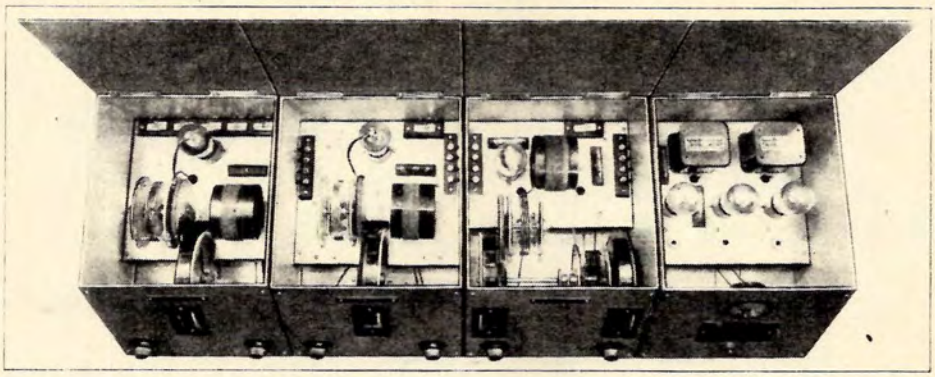
HARDWARE & ACCESSORIES

NOMENCLATURE: VARIABLE CONDENSERS & SW. COIL SETS

FUNCTION: For home-constructors & early sets. (NA-ALD Band-Switching Assy.)

Leutz Model C

(Sht. 1)



The Model "C" comprised 2 RF units, a regenerative DET unit, and an AF unit, reading from left to right in the above cut. Designed as a Short-Wave receiver, it was supplied with six plug-in coils:

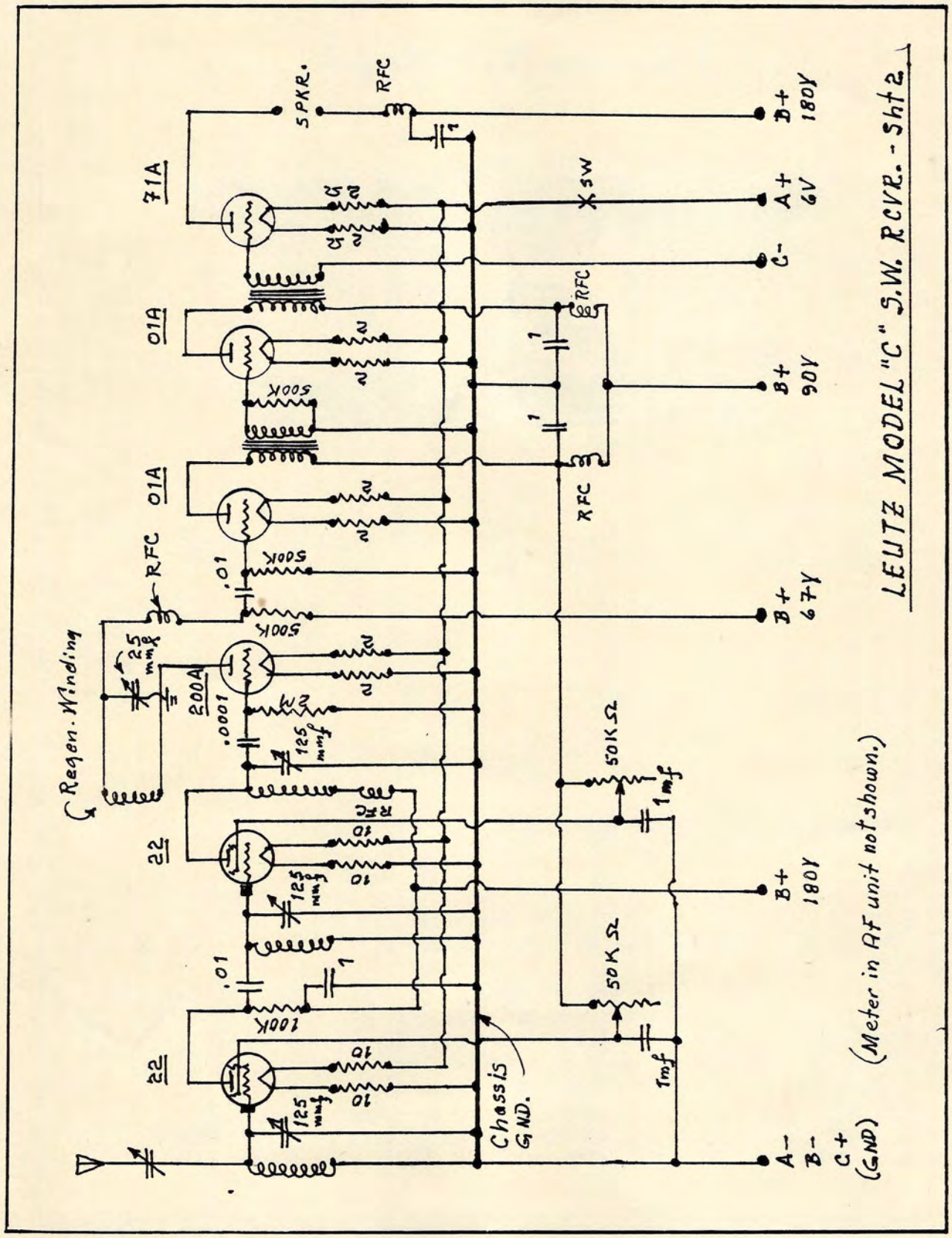
Coil:	Meters:
1	200-100
2	110-70
3	75-50
4	55-30
5	35-20
6	25-15

Jacks were provied for either headphones or speaker, and either could be used in any stage of the receiver.

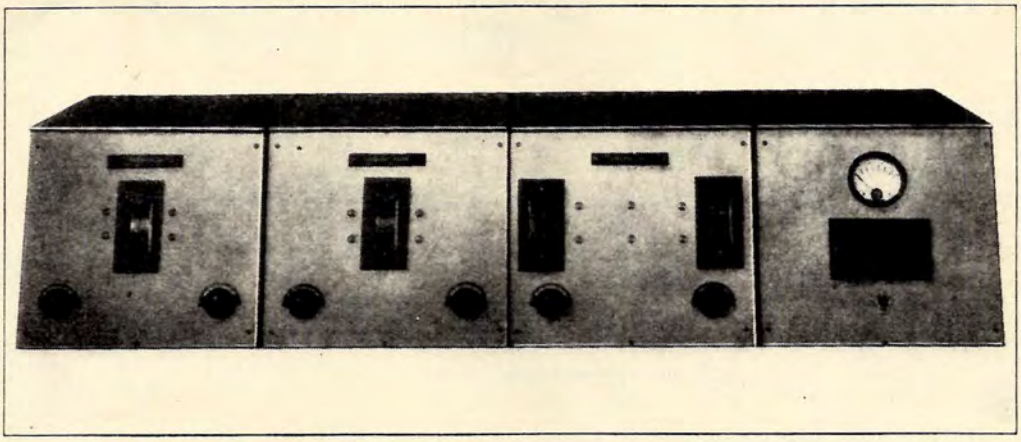
The DET unit was arranged with a two-winding coil, one winding for the DET grid circuit; the other for regeneration, as shown on the schematic depicted over-leaf. Coupling between the two coils was fixed.

The ANT stage (1st RF) had one tuned inductance also with two windings. The first winding tuned the grid circuit of the tube, which was capacitatively tuned to the ANT circuit. The second winding could be used or not, at the user's discretion. The second winding was provided for use of a "dirigible-type" antenna.

Offered primarily as a battery set, an AC version was available from Leutz on special order, although Chas. Leutz recommended batteries.


LEUTZ MODEL "C" S.W. RCVR. - Sht 2
SPKR.
RFC
71A
01A
01A
RFC
01A
22
22
22
Regen. Winding
25 mmf
200A
.0001
.01
.01
1
500K
500K
500K
100K
2M
125 mmf
125 mmf
125 mmf
10
10
10
10
RFC
RFC
RFC
1
1
1
50K Ω
50K Ω
1 mf
1 mf
SW
B+ 180Y
A+ 6V
C-
B+ 90Y
B+ 67Y
B+ 180Y
Chassis GND.
A-
B-
C+ (GND)
(Meter in AF unit not shown.)

LEUTZ MODEL "C" NOTATION (Sht. 3)

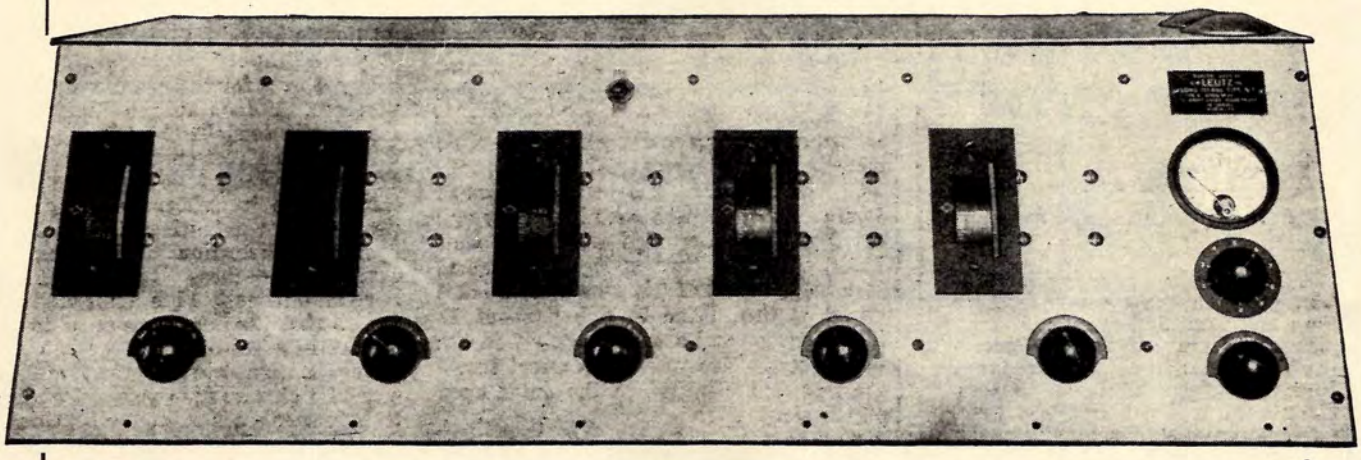


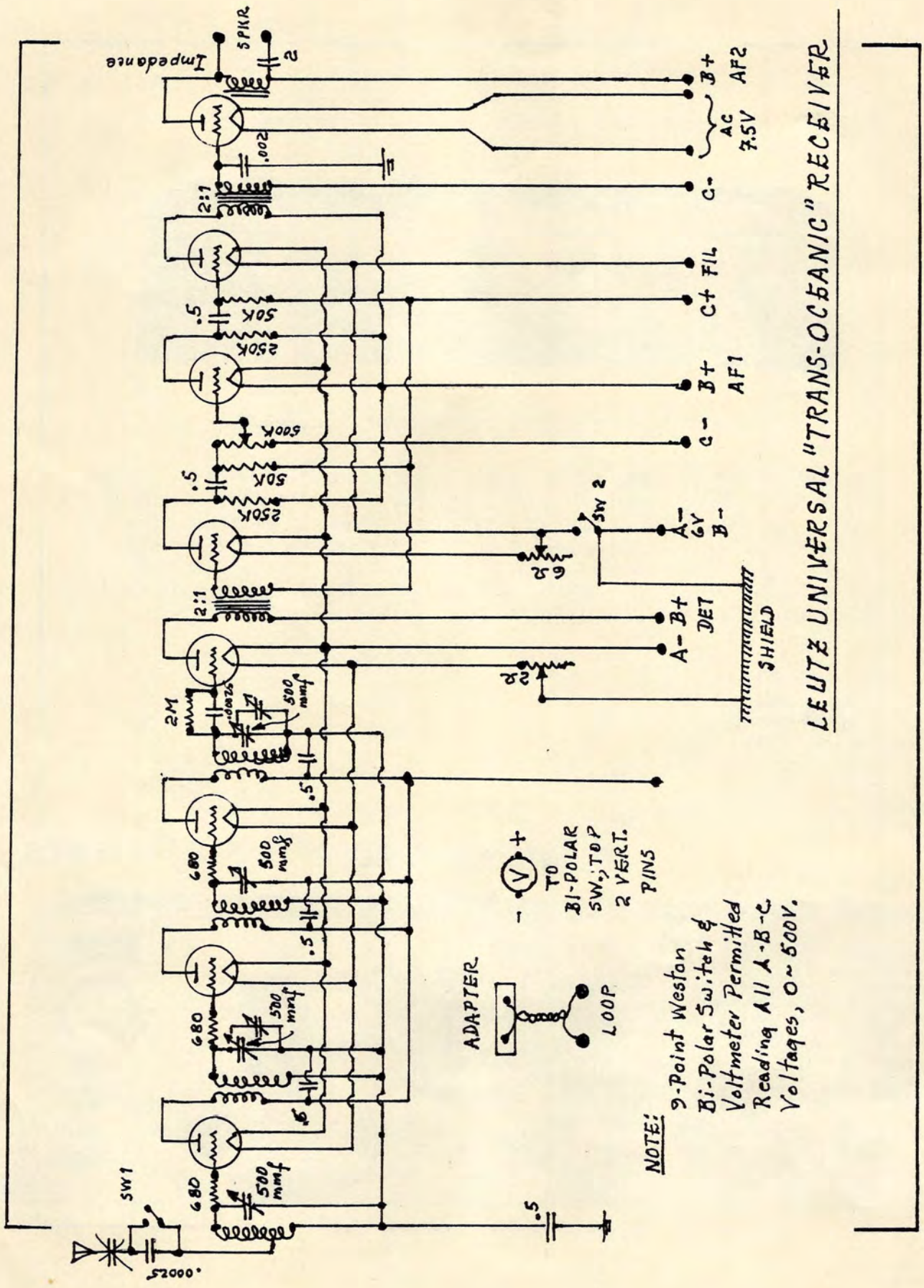
You might wish to compare the Model "C" configuration with the Leutz Universal "Phantom Special" depicted below. The unit-construction idea was on-going with Leutz, and for his "Silver Ghost" receiver, for example, he used 14 unit stages! A cut of that lengthy receiver will be found in SUPER-HETS OF THE TWENTIES, Volume X, of these Sketch-Books. Leutz did not always offer his sets in both kitted form and as factory-built sets; the "Phantom Special" was offered in both modes.

PRICES

Phantom Special, completely constructed and laboratory tested....	$250.00
Phantom Special Kit, all parts ready for assembly and wiring, net price to custom set builders.....	92.00
Complete set constructional blue prints, 3 sheets, postpaid.....	2.00

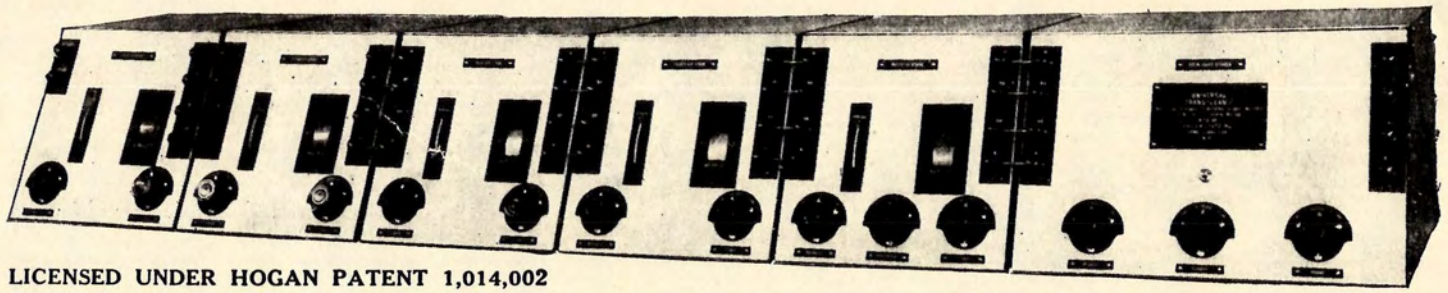
"PHANTOM SPECIAL" 9 TUBES




LEUTZ UNIVERSAL "TRANS-OCEANIC" RECEIVER
Impedance
5 PIKR
2
.002
2:1
B+
AC
7.5V
AF2
C-
C+ FIL
.5
50K
250K
500K
B+
AF1
A-
6V
B-
SW 2
A- B+
DET
SHIELD
2M
.0025
500 mmf
6B0
.5
SW 1
.00025
ADAPTER
LOOP
TO
BI-POLAR
SW. TOP
2 VERT.
PINS
NOTE:
9-Point Weston
Bi-Polar Switch &
Voltmeter Permitted
Reading All A-B-C
Voltages, 0~500V.

Design by
CHAS. R. LEUTZ

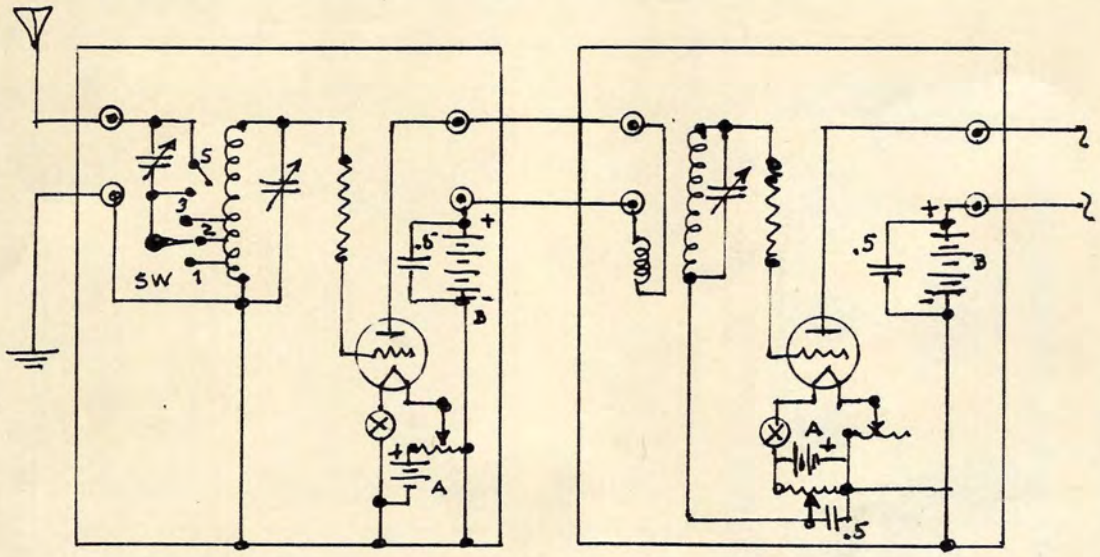
UNIVERSAL TRANSOCEANIC



LICENSED UNDER HOGAN PATENT 1,014,002

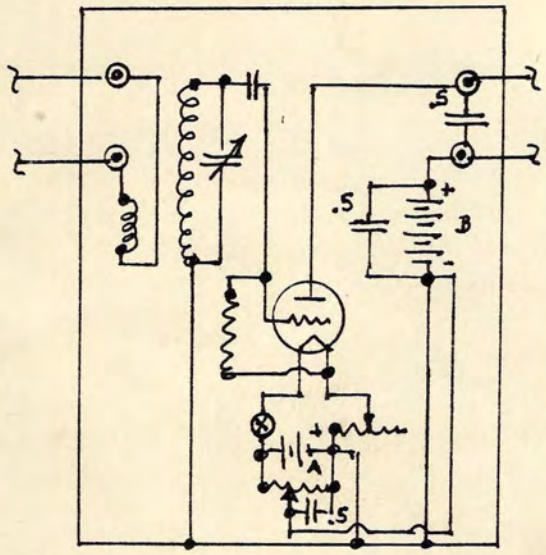
Wavelength Range 35 Meters to 3600 Meters

VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS



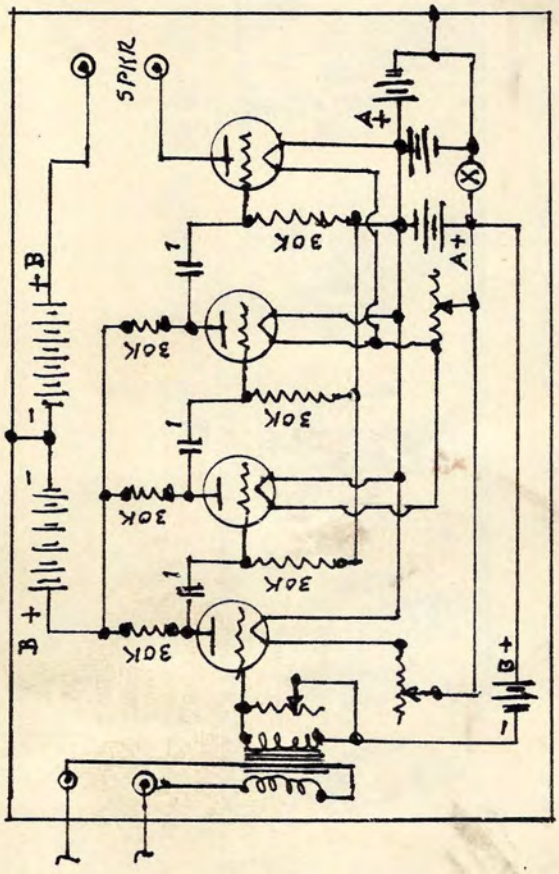
1st RF STAGE

2nd, 3rd, 4th RF STAGES



DET STAGE

(All shield-cans were of zinc sheet metal.)



4-STAGE AUDIO

LINCOLN R-9

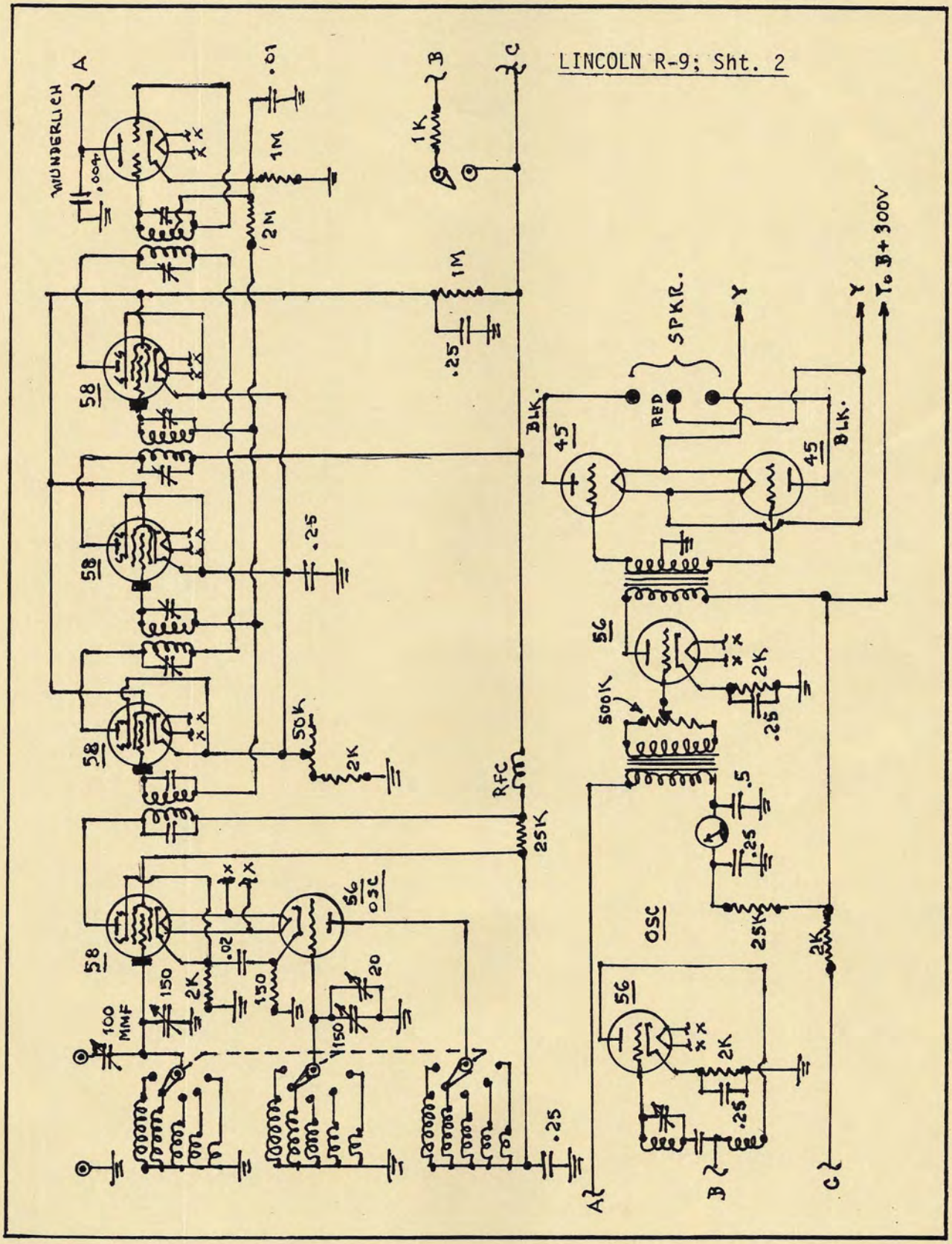
The LINCOLN R-9 was a bit later than the period covered by these Sketch-Books and Monographs, but when I saw it, I immediately felt that it was a "pretty" example of early short-wave receivers, so I decided to include it here.

The R-9 was adapted from the same circuitry as LINCOLN's De-Luxe SW-33. It was a short-wave super-het, with 11 tubes, and a seperate power amplifier. The tube complement was (2) 45, (3) 56, (4) 58, and the then-wonder-tube known as the Wunderlich; plus the 80 in the power unit. The selector-switch (band-switch) was noted for its silver-plated contacts. The Wunderlich tube permitted AVC control from the front panel, as well as BFO controllable from the panel. The meter, called a "Signal Indicator", showed you when you had centered the carrier, as well as indicating un-modulated carriers.

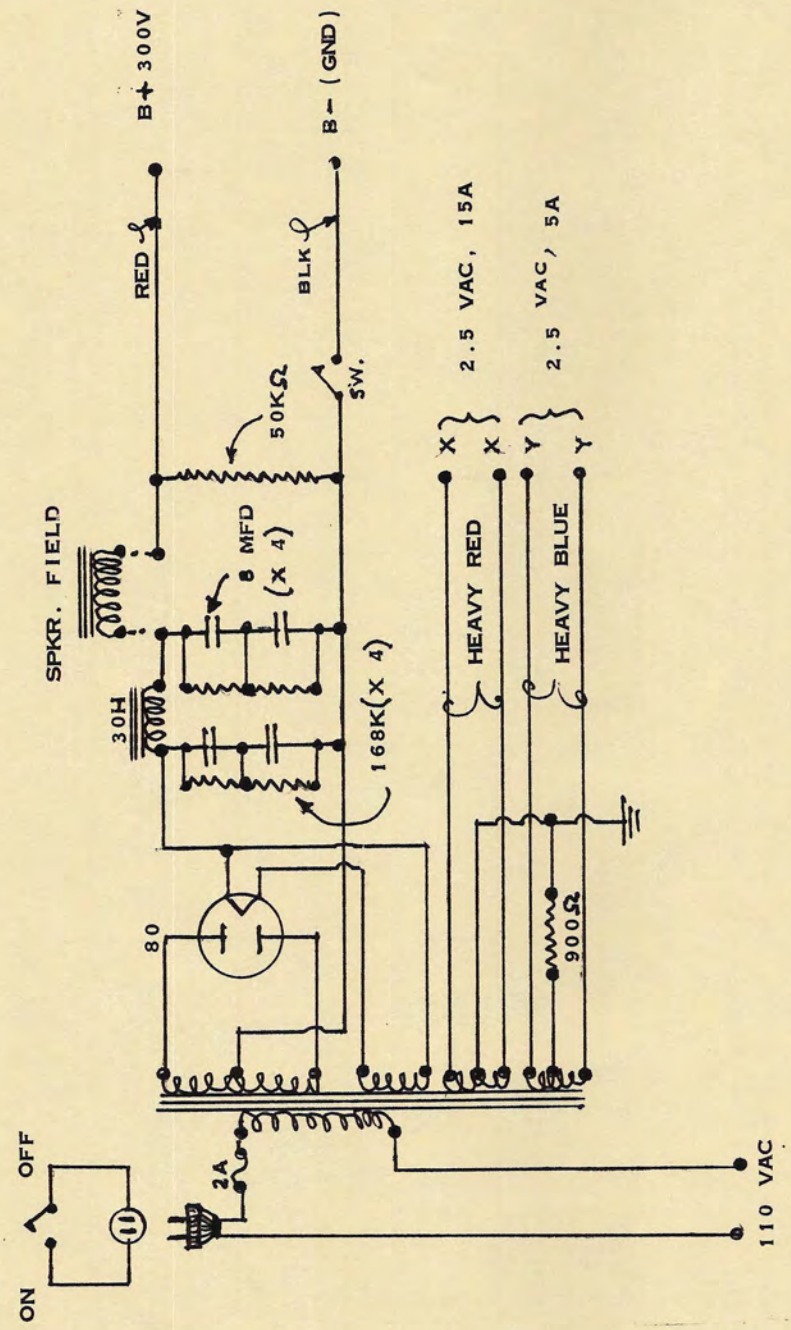
The left-hand dial was for tuning; the right-hand dial was the band-spread. A jack was provided for head-phones, although the normal output went to a dynamic speaker. The band-spread was effective on all frequencies, and control of Sensitivity and Volume was the same as with the SW-33.

The cover was heavy metal, resting on a thick wooden base with a deeply etched moulding running around three sides. All in all, a most satisfactory all-wave receiver, covering 9 to 200 meters, and reflecting the true state-of-the-art in 1933.

* * *

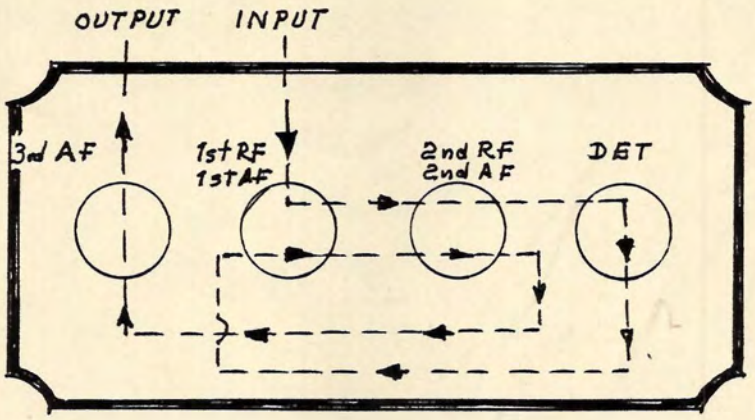

LINCOLN R-9; Sht. 2
WUNDERLICH
A
B
C
.01
.004
1M
2M
1K
1M
.25
58
58
58
.25
50K
2K
RFC
25K
58
56
OSC
.02
150
2K
150
20
150
100 MMF
.25
SPKR.
Y
Y
To B+ 300V
BLK.
45
RED
45
BLK.
56
2K
500K
.25
.5
.25
25K
2K
OSC
56
2K
.25
A
B
C

LINCOLN R-9 SHORT-WAVE RECEIVER, 1933: Sht. 3

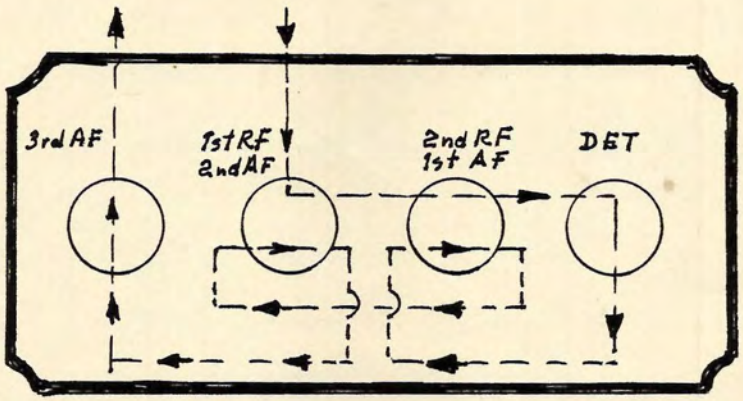


LINCOLN R-9 POWER SUPPLY

THIS POWER SUPPLY IS ESSENTIALLY THE SAME AS THE LINCOLN SW-33.



TYPICAL REFLEX CIRCUIT



INVERSE DUPLEX CIRCUIT

NOTES:

1. AF xfrmrs. for reflexed stages should be of LOW ratio ~ 1.5:1 / 2:1.
2. Last AF xfrmr. should be on the order of 6:1.
3. Output tube should be as far from the DET tube as possible.
4. Grid-leak & condenser should be attached directly to tube GRID post.
5. Use of a RFC in 2nd RF grid line is recommended.

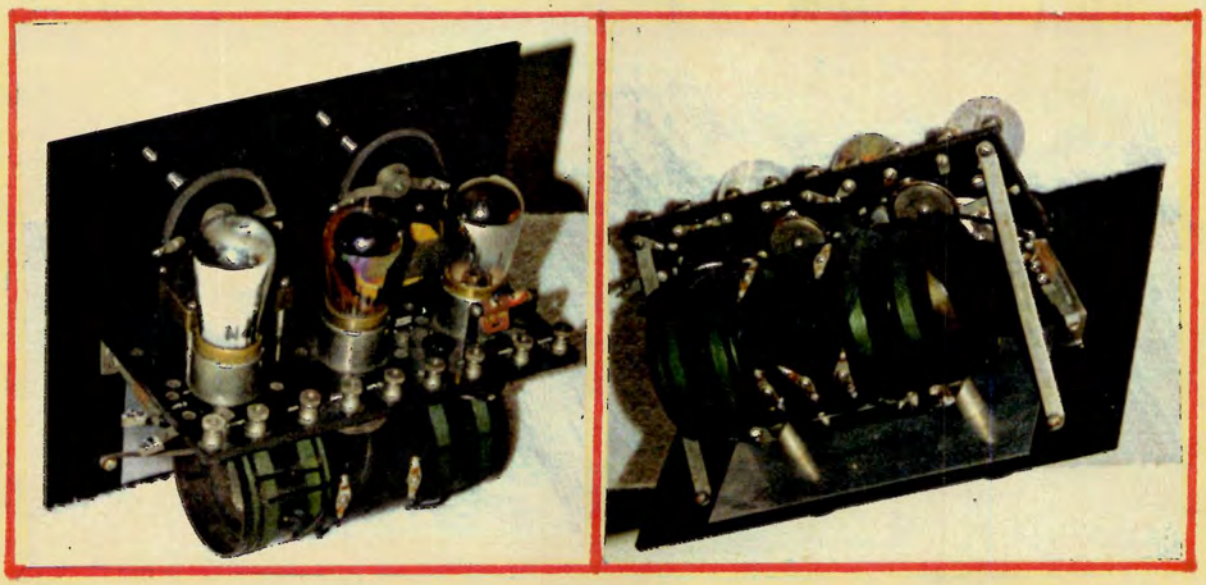
(RN 826)

ECHOPHONE

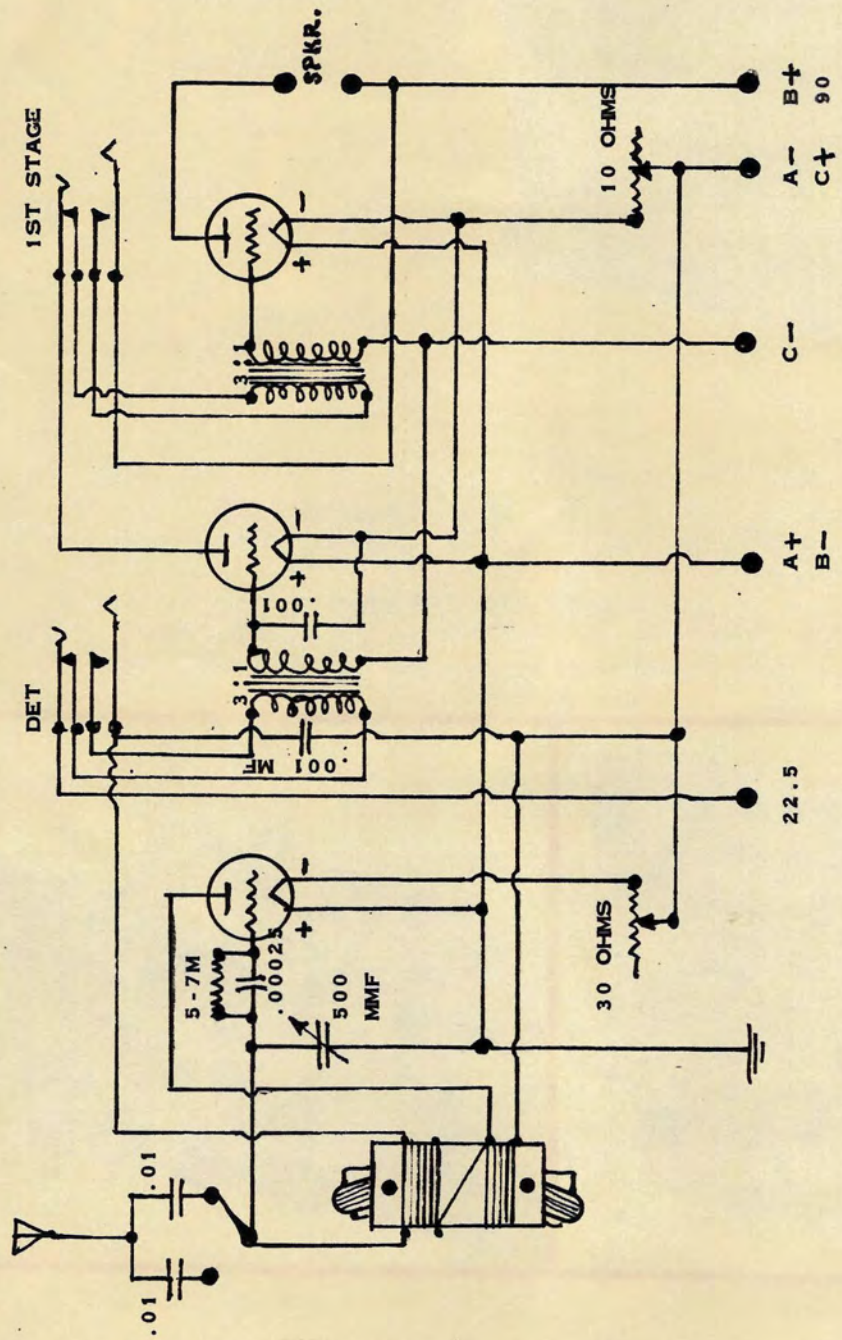
MODEL A

1923

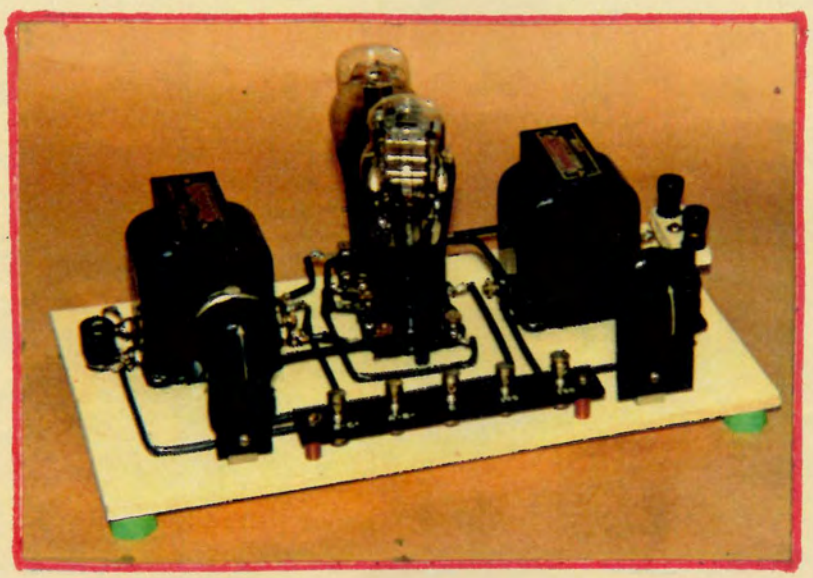
The Echophone Model "A" was the most popular of the Echophone sets produced in Sunnyvale, California, Chicago, and Los Angeles. It was the first commercially successful set to combine regeneration and AF. Well-made and dependable, within the limits of the state-of-the-art of the period, the Echophone enjoyed a continuing popularity well into the Thirties, when the line was bought by Hallicrafter. Those who remember the last Echophone, the Commercial "E", will nod.



ECHOPHONE MODEL "A", 1923



A FEW ORIGINAL CONSTRUCTIONS BY D.H.MOORE

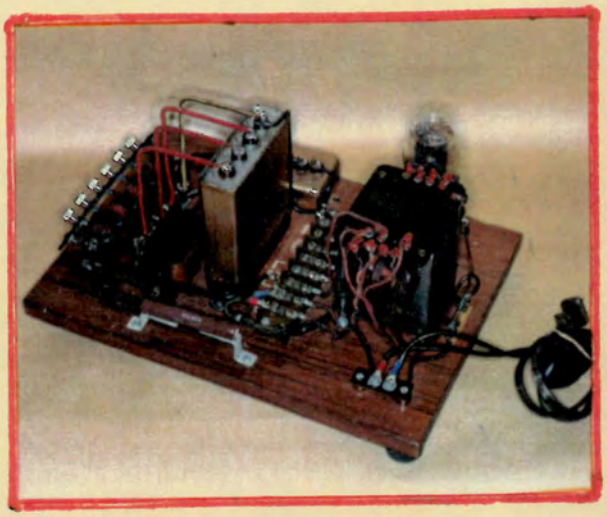


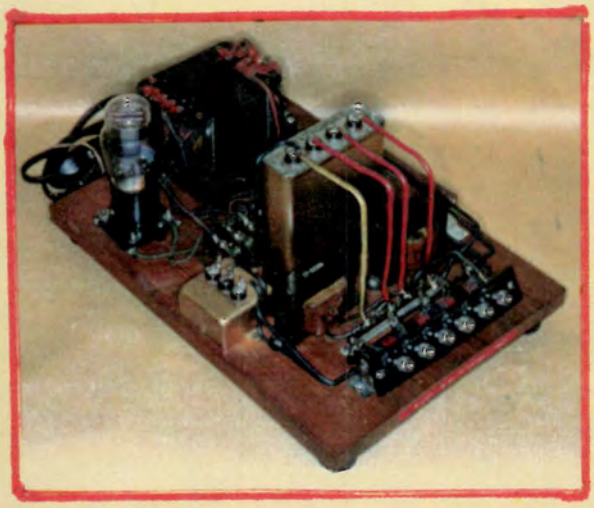
THORDARSON PUSH-PULL AMPLIFIER

1925

THIS CIRCUIT CONFIGURATION WAS ALSO USED BY SUCH FIRMS AS ACME, GENERAL RADIO, SILVER-MARSHALL, ETC.

A FEW ORIGINAL CONSTRUCTIONS by D.H.MOORE





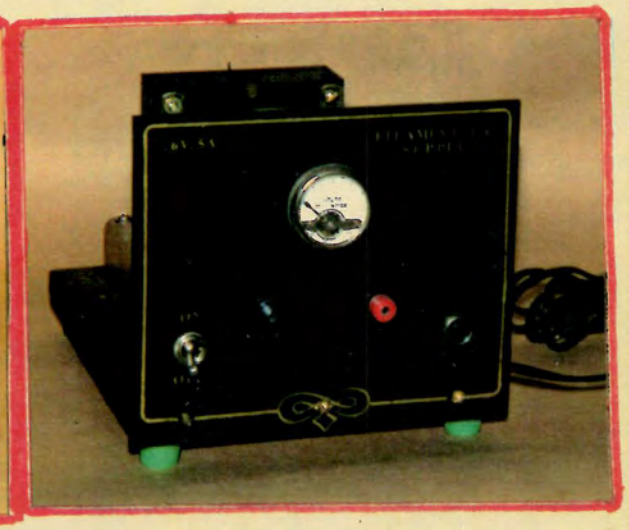
PILOT "B" ELIMINATOR, 1927
(ALSO KNOWN AS "JUMBO" PWR. UNIT.)

"INFRA-DYNE" "B" & "C" ELIMINATOR
& POWER AMPLIFIER
1927

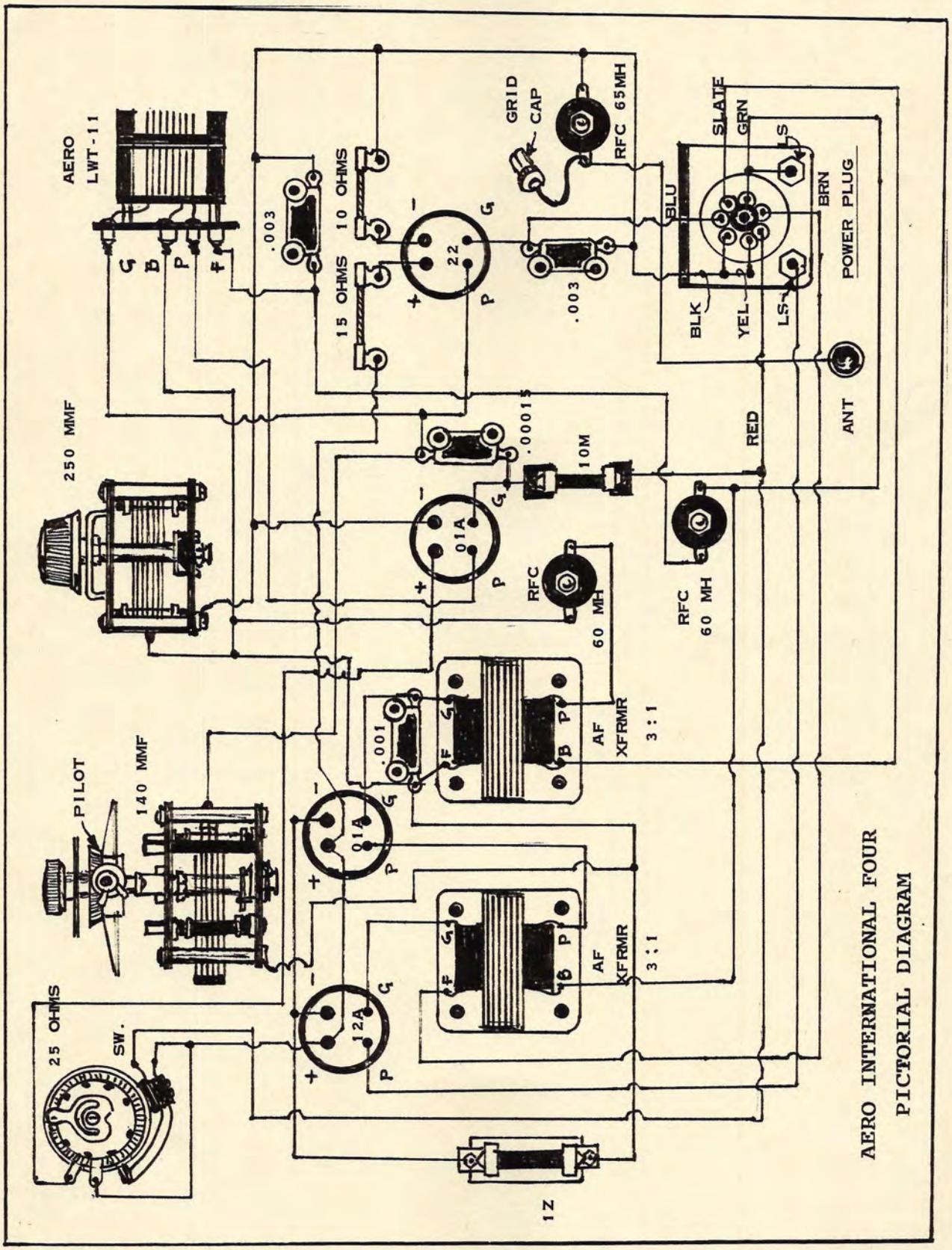
A FEW ORIGINAL CONSTRUCTIONS by D.H.MOORE

SARGENT'S "INFRA-DYNE" AMPLIFIER
(THIS IS CLYDE FITCH'S VERSION
WHICH WAS BETTER BALANCED.)
1927

C-BIAS & '99 POWER SUPPLY



'A'-ELIMINATOR, 6V, 5A



AERO INTERNATIONAL FOUR

PICTORIAL DIAGRAM

THE DEMOGAPHY OF PERCEPTIVE HOBBYISTS WHO HAVE BOUGHT

"THE VINTAGE RADIO IDENTIFICATION SKETCH-BOOKS" of D.H.MOORE

Beyond Rider!

ARE YOU REPRESENTED?

Olde Tyme Radio Company

2445 LYTTONSVILLE ROAD

SILVER SPRING, MARYLAND 20910